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September 1993

Dear Colleague:

Enclosed is your copy of INPUT's Information Services Market Analysis Program report on the *Human Resources Cross-Industry Market*. This edition, covering the 1993-1998 period, continues our new approach to major market sectors, in that it combines the traditional INPUT interview-based survey and forecast activity with the vision of an industry expert. INPUT believes that this combined approach strengthens our assessment of the trends, issues, technology, and market developments that currently drive this market.

For this report, INPUT interviewed a broad range of users and managers of information systems, plus a number of leading vendors of information services to the industry. This survey base, coupled with the knowledge of an experienced industry specialist, has resulted in what we feel is a highly informative and insightful report.

Please insert this report behind the *Human Resources* tab in your Market Analysis Program binder.

I would be pleased to receive your opinions and suggestions on this or any other of our reports in this new format.

Sincerely,

A handwritten signature in dark ink that reads "Bob Goodwin".

Robert L. Goodwin
Manager
Information Services Market Analysis Program

Enc.

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Robert L. Goodwin

Manager

Information Services Market Analysis Program

Enc.

HR TRANS, Doc

MVX
Human

INPUT MEMORANDUM

DATE: June 29, 1993

FROM: Bob Goodwin

TO: Andrea Jeris

SUBJECT: Transmittal letter, Human Resources cross-industry market

CC:

DRAFT LETTER OF TRANSMITTAL

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Bob Goodwin

CROSS-INDUSTRY
MARKET ANALYSIS

HUMAN RESOURCES
1993-1998

**U.S. Information Services
Market Analysis Program**



AUGUST 1993

HUMAN RESOURCES

INFORMATION SERVICES OPPORTUNITIES IN CROSS-INDUSTRY MARKETS

1993-1998

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**Information Services Market Analysis Program
(MAP)**

Human Resources

***Information Services Opportunities in Cross-
Industry Markets***

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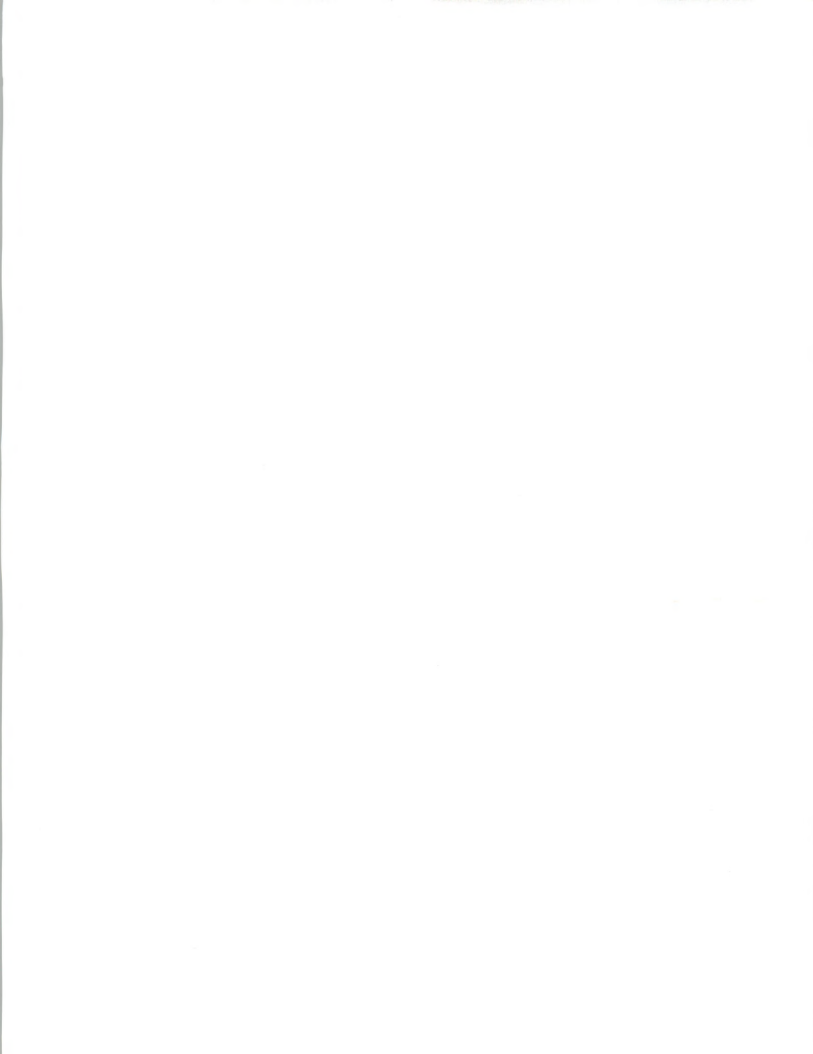


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Introduction

A

Purpose, Organization and Methodology

This section identifies the purpose and scope of this report, identifies key issues affecting information services expenditures in the human resources cross-industry sector, notes how the document is organized and explains INPUT's research methodology and techniques used in the preparation of forecast data.

1. Purpose

The purpose of this Forecast Report is to identify key changes in the market for information services in the human resources cross-industry sector and to provide the 1993 INPUT forecast for this market sector.

Sector Definition - The human resources cross-industry sector, as defined by INPUT, consists of applications solutions and processing services purchased by multiple industry sectors to serve the functions of human resources management and payroll. Examples of specific applications within these two major functions are:

- HR Information Systems
- Applicant Tracking
- EEO/Affirmative Action Administration
- Benefits Administration
- Compensation Planning and Administration
- Human Resources Planning
- Position Tracking
- Labor/Employee Relations
- Health and Safety
- Training and Management Development
- Organizational Development
- Payroll Processing
- Attendance/Timekeeping



Key Issues - Market issues influencing the market for information services that are discussed in the report include:

- Corporate restructuring and downsizing, and their effects on human resource
- The increasing importance and significance of human resource/payroll functions
- The impact of continued growth of federal, state and local government regulation of the work place
- The growing complexity of human resources and payroll processing and reporting
- Re-engineering of human resources systems and functions in the pursuit of more efficient and cost-effective service delivery

Key technology issues such as the emergence of client/server systems in the marketplace, the need for greater payroll/human resource application integration, downsizing of the mainframe the role of emerging technologies, the future of open systems, and importance of relational data base technology are also examined.

2. Organization

In addition to this introductory chapter, the report contains analyses of the information services market and competitive environment as described below:

- Chapter II—*Industry Trends, Events and Issues*—discusses changes, market issues and activities, and competitive factors in the human resource cross-industry sector that can have an impact on the current and future use of information services.
- Chapter III—*Information Systems*—discusses emerging and hot technologies, major technology trends, key applications and identifies the leading and emerging vendors of human resource systems products and services.
- Chapter IV—*Information Services Market Forecast*—presents an analysis of the expenditures for information services by delivery mode and submode, for the human resource cross-industry sector.
- Chapter V—*Vendor Competition*—describes the competitive climate in this sector, positions leading vendors, their revenues and market shares, and provides brief profiles on selected leading companies in this market.



- Appendix A - which contains the *Forecast Data Base*, presents a detailed forecast, by information services delivery mode and submode, for the human resource cross-industry sector. A reconciliation to the previous forecast is also provided.

3. Methodology

Much of the data on which this report is based has been gathered during 1992 and early 1993 as part of INPUT's ongoing market analysis program. Trends, market sizes, and growth rates are based upon INPUT research and in-depth interviews with users in the retail distribution industry and the IS vendors serving the industry. INPUT maintains ongoing relationships with, and a data base of, all users and vendors that it interviews. Interviewees for the research portion of this report were selected from this data base of contacts.

INPUT Library - In addition, extensive use was made of INPUT's corporate library located in Mountain View, California. The resources in this library include on-line periodical data bases, subscriptions to a broad range of computer and general business periodicals, continually updated files on over 3,000 information services vendors, and the most up-to-date U.S. Department of Commerce publications on industry statistics.

Financial Data - It must be noted that vendors may be unwilling to provide detailed revenue breakouts by delivery mode or industry. Also, vendors often use different categories of industries and industry segments, or view their services as falling into different delivery modes from those used by INPUT. Thus, INPUT must estimate revenues for these categories on a best-effort basis. For this reason, the delivery mode and individual segment forecasts should be viewed as indicators of general patterns and trends rather than specific, detailed estimates for individual years.

B

General Business Trends

As noted in the Economic Assumptions section of the Department of Commerce's 1993 U.S. Industrial Outlook, U.S. economic growth in 1992 was somewhat less than was forecast in the prior year. The very slow recovery seen at the end of 1991 continued into 1992, with unemployment remaining at undesirable high levels—a condition fueled primarily by corporate restructuring and defense industry cutbacks. Even though retail sales were encouragingly high during the 1992 Christmas season, business



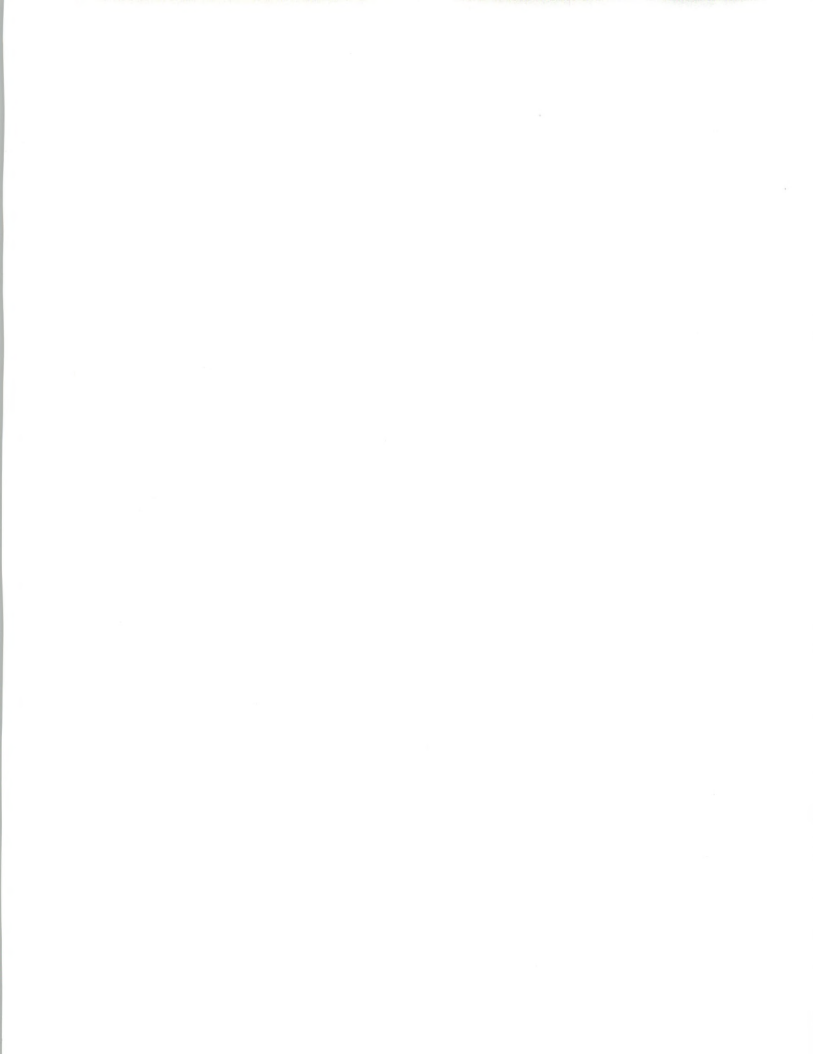
expenditures continued to remain low, due to both an ongoing desire to reduce costs and improve profits, and uncertainty as to the precise nature of any economic (primarily tax) reforms that would be proposed by the new Clinton administration to support its various programs.

In 1992, the major burden for implementing economic policy fell on the Federal Reserve, a strategy that caused the Fed to steadily reduce the federal funds rate from 8% in June of 1990 to 3% in September of 1992, forcing a general reduction in all interest rates to the lowest levels in years.

The outlook for 1993 is cautiously optimistic, with many of the uncertainties tied to the new administration's attempts to both reduce the budget deficit while, at the same time, stimulating a still sluggish economy. At this time, messages remain mixed, with proposed corporate taxes favoring small businesses and those who make capital investments and penalizing larger corporations, especially services firms, through a 2% increase in the top corporate tax rate from 34% in 1992 to 36% in 1993. Personal income will be reduced by a proposed average increase in income taxes of 3% for middle income families and 5% for those in the highest income categories. All taxpayers, both business and individual, will also experience higher energy costs due to proposed new energy taxes. Many critics of the administration's proposals fear that the new taxes risk slowing the economy just when it has started to show some healthy growth—and there is a general wait-and-see attitude to determine how successfully the proposals survive the conflicting agendas of the congressional process.

INPUT uses the Blue Chip Consensus (economic) report, and various other sources (Federal Reserve, IMF), to identify anticipated economic growth trends and incorporate GDP assumptions in both industry and delivery mode financial forecasts. Economic growth in 1992 had a very slight upwards movement, but the 3% growth in GDP anticipated for that year is now forecast for 1993. This modest 3% growth is the logical result of the pressures placed upon the defense industry, tax uncertainties, a weak commercial real estate market, high federal debt, slow growth in the labor force, cautious financial institution lending policies, and the growing economic interdependence of the industrialized nations, causing one country's economic problems to affect all. Balancing these growth inhibitors are the healthy gains in corporate profits noted in 1992 and a pattern of increased consumer spending.

In summary, U.S. economic fundamentals strengthened in 1992, establishing a foundation for the modest but steady 3% growth predicted for 1993.





Trends, Events, and Issues

A

Overview

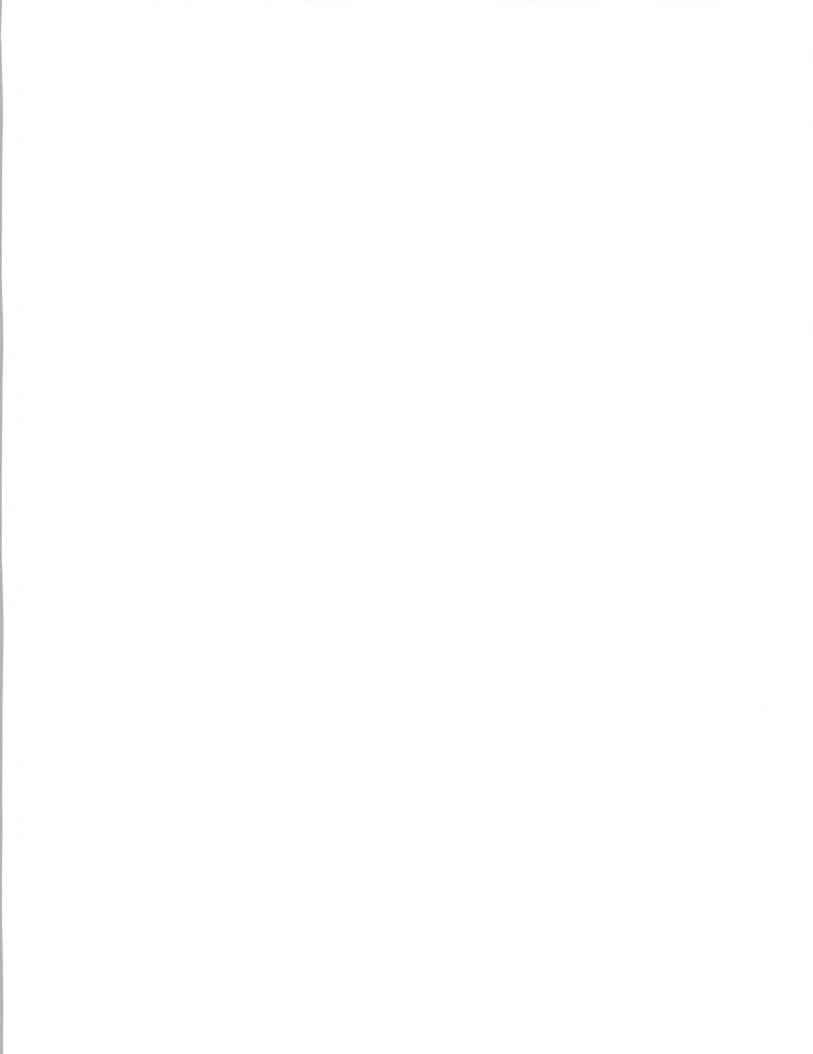
The human resource/payroll systems marketplace continues to experience rapid technological and structural change. Systems and software vendors, Information Systems (IS) professionals and end users are scrambling hard and fast to embrace and take full advantage of the evolving technology. Technology issues tend to dominate the discussion over the system selection, and there has been a re-emergence of the importance of the IS function in the decision-making process.

At the same time, continued dramatic changes in the corporate business climate and government regulatory environment have led to a strong continuing demand from systems users for more integrated products with greater functionality, flexibility, ease-of-use and cost-benefit. This is particularly true in the human resource benefits administration and reporting areas where much emphasis is placed on the national effort to gain some measure of control over spiraling costs of employee benefits programs. Users of human resource systems have grown substantially more sophisticated in the application of technology to their jobs and are demanding more and better performance from their systems. It can best be described as the era of user empowerment.

The rapidly evolving marketplace for human resource systems has led to significant changes in the vendor community over the past two years. There has been a noticeable maturing of the marketplace. The entry of major new players and products has slowed from the pace of two years ago. Significant vendor consolidations have taken place in almost all segments of the human resource systems marketplace as a result of acquisitions by major players. For large scale, comprehensive human resource/payroll systems, this consolidation has resulted in fewer primary vendor choices for customers. Introduction of new or revamped products taking advantage of client/server, graphical user interface is a driving force for most of the existing vendors regardless of whether they are mainframe, midrange or PC-based.

B**Major Cross-industry Sector Trends**

- Vendor-provided products are strongly preferred to in-house human resource/payroll system development in most environments.
- Corporate downsizing and restructuring is continuing to put pressure on human resource departments' ability to deliver services to clients. As companies scale back their middle management ranks and less staff is available to handle human resource-related matters, more emphasis is being placed on automation of human resource record-keeping and reporting.
- "Re-engineering" of the human resource function to increase efficiency and effectiveness of operations with less staff is becoming a popular theme.
- New government laws and regulations, particularly impending health care reform, will impact human resource/payroll system record keeping and reporting requirements very dramatically in the next year to year-and-a-half. Large and small organizations in all segments of American business will have to focus resources and attention on bringing corporate human resources practices and policies into compliance with the new laws and regulations. For many companies, this will mean substantial revisions and modifications to their human resource and payroll systems.
- The human resource function continues to grow in importance and visibility as corporations struggle to cope successfully with changing workforce demographics, increasing recruitment difficulties for highly skilled workers, worker training, productivity and quality improvement efforts, and of particular significance, health care and benefit-cost containment. The critical need for management access to timely and accurate data on all aspects of the corporate workforce for planning, analysis and forecasting of business plans and activities, has propelled human resource systems into a significantly more important role in most organizations.
- Globalization of corporate work forces will pose new challenges for human resource and payroll operations, particularly if the North American Free-Trade Act is passed. Even without it, the growth in the number of U.S. companies involved in international activities will undoubtedly continue to increase, and bring with it, new and unique human resource recordkeeping, tracking and reporting requirements.



These trends are summarized in Exhibit II-1.

EXHIBIT II-1

Human Resources

Industry Trends

- User empowerment
- Vendor consolidation
- Vendor software product acceptance
- Automation prompted by re-engineering and corporate downsizing
- Continuing government regulation and recordkeeping requirements
- Need for rapid access to critical personnel data
- Globalization of work forces



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Information Systems

A

Technology Trends

Trends in the human resource/payroll system area clearly cut across all industry sectors. The significance of the industry trends, noted below and summarized in Exhibit III-1, are affected to one extent or another by the size of the company.

EXHIBIT III-1

Human Resources

Key Technology Trends

- Client/server architecture
- Networking
- Applications integration
- GUI
- Downsizing
- Data base technology
- Open systems/UNIX
- Imaging
- Voice recognition

Client/Server Architecture - This is by far and away the most significant driving force in the human resources (HR) systems marketplace today. All of the major vendors are rushing to bring some form of client/server to the marketplace this year. Because of its expense, complexity, and the need for central MIS involvement, its appeal is strongest to larger, more complex companies with multiple locations.

Networking - Due to the independence and control that a local-area network provides end-users, human resource operations continue to migrate to this option as a preferred automation alternative.

Applications Integration - The proliferation of standalone or networked PC-based human resource/payroll applications has resulted in serious data redundancy, integrity, and duplication of effort issues in many organizations. There is an increasing desire to have fully integrated software so that HR, payroll, and subsystems share the same master file current and historical data.

GUI - Another hot trend is toward graphical user interfaces for human resource/payroll systems. The appeal is undeniable, as witnessed by the success and positive press received by PeopleSoft's GUI products. All the major vendors are developing GUI products in conjunction with their client/server offerings.

Downsizing - The trend toward downsizing of the mainframe and off-loading applications to midrange or networked systems is continuing unabated from last year. For larger operations, wider availability of viable client/server-based products will likely accelerate off-loading in the human resource/payroll systems area. However, large corporations with mainframe-based payroll systems will likely want to continue to keep the payroll on the mainframe.

Data Base Technology - Systems utilizing true relational data base technology continue to have strong appeal to human resource operations that have to frequently modify their data bases to keep pace with constant organizational and government-mandated changes.

Open Systems/UNIX - From a technical standpoint, portability, interoperability, and scalability of systems are becoming increasingly important, especially in enterprisewide computing environments with a variety of heterogeneous data bases. A number of vendors are developing human resource systems that will run under UNIX. The trend toward UNIX-based systems will undoubtedly grow in strength over the next year.

Imaging - There are many potential applications for imaging in human resources, and use of imaging systems is definitely on the increase for areas such as applicant tracking. Because of the large volume of input required to establish and maintain human resource applications, data entry bottlenecks are common and frequently inhibit the overall effectiveness of the system.

Voice Recognition/Interactive Systems - Benefits enrollment, status changes, dissemination of human resource/payroll policy and procedure information, job descriptions and career counselling information are a few of the applications for voice recognition systems already in existence. Although expensive, this technology offers potential for substantial cost



saving for large employers who now employ considerable numbers of clerical and technical workers to process enrollment, change of status forms, and retrieve information and answer questions from employees concerning their benefits and employment status.

B

Vendor Activities

Vendors of general purpose HR systems and payroll systems have been scrambling to bring some form of client/server or open system product to the marketplace in response to the strong continuing trend toward downsizing of the mainframe and user demands for greater networking and connectivity capabilities.

Development of system enhancements/modules to fully support flexible benefits tax calculations and carrier reporting are a major priority for vendors at all levels.

Leading vendors of PC-based human resource systems have developed and introduced to the marketplace full-featured payroll systems running on PC local-area networks. These vendors are providing ongoing tax support and maintenance as part of their product offerings. This overcomes a primary problem purchasers of PC-based payroll packages have had in the past. The primary market for these products initially are small to mid-sized companies who would otherwise turn to a payroll-processing service.

Major consolidations of human resource/payroll system vendors have taken place over the last two years indicating a maturing of the marketplace. There are fewer major players at all levels due to these acquisitions and buyouts. The trend clearly is toward more consolidation through buyouts and acquisitions. As the demand from users for more comprehensive and effectively integrated human resource/payroll systems has increased, vendors have been hard pressed to develop new products internally, which is expensive and exceptionally time consuming. Hence, it has been more expedient for the larger and more successful vendors to acquire companies or products that complement and expand their primary product lines.

There is a growing demand from users of HR/payroll systems for more fully integrated data bases and subsystem access. Integration of systems poses major challenges for vendors whose product lines consist of systems acquired from various developers, or who do not have consulting services available for development of system interfaces. Vendors are having to respond to user demands for better integration of HR modules, closer integration with payroll, and sharing of HR/payroll data with financial applications.



Vendors at all levels have expanded consulting and other professional services to meet user needs for system customization, interface development, project management, and on-site education. This continues to be a major revenue generator for most vendors, as it is rarely possible for companies of any size to implement a HR/payroll system package in a true "vanilla" form. Major vendors such as Dun and Bradstreet, Integral, and Cyborg now gain 20% to 35% of their total U.S. revenues from consulting services. Consulting services to the human resource cross-industry sector are a very significant part of the market, and the numerous independent consulting firms engaged in this activity.

Vendors of standalone or networked specialty systems for various human resource functions, such as compensation and benefits and applicant tracking, continue to play a significant role in the marketplace.

Vendors of payroll services and payroll systems have migrated to personal computer front-ends for entry and transmission of payroll data, on-line access, and reporting of payroll masterfile and historical data. Increasingly, payroll and human resource operations want direct and immediate access to all current and historical payroll data for reporting and data manipulation purposes. Vendors must be able to provide such access as a viable option to in-house payroll solutions.

The advent of powerful PC-based payroll systems will apply additional pressure to payroll services unable to provide the level of access to payroll data desired by clients.

Their vendor strategies are summarized in Exhibit III-2.

EXHIBIT III-2

Human Resources

Vendor Strategies and Activities

- Client/server product introductions
- Flexible benefits packages
- PC/LAN full-featured payroll systems
- PC-based front ends to payroll services
- Vendor consolidation
- Fully integrated human resources data bases
- Expanded professional services



C**Major Human Resource Management System Issues**

The emergence of client/server systems is refocusing attention on the role of IS in HR/payroll systems acquisition, implementation, and administration. The advent of standalone and networked PC-based human resource systems provided users with a measure of control over their departmental computing not previously possible with mainframe systems.

While fully integrated HR/payroll systems have much to offer, developing and implementing such systems pose major challenges for most organizations due to the differences in the roles, functions, and organizational cultures of payroll and human resource operations. Organizationally, they usually report to different entities and often have competing priorities and claims on organizational resources. Successful resolution of these critical organizational issues is paramount in order for a fully integrated system to work properly.

Re-engineering of the human resource function is increasing as a major theme in many larger organizations. Improving HR/payroll service and responsiveness through technology is becoming more of a visible priority, as companies wrestle with continued downsizing and restructuring issues.

Resource allocation for purchase and implementation of HR/payroll systems continues to be a major issue because many companies still underestimate the ultimate cost and time required to implement new or updated human resource/payroll systems.

The choice of technology platforms for human resource systems and the issue of emerging technologies will continue to create issues between end users and central IS operations. Many human resource shops are attracted to PC-based systems because of their data base capabilities, ease-of-use, and the fact that they can be administered with greater independence from IS. The drive toward enterprisewide computing, open systems, and client/server technology is changing the picture and the dialogue. Many advocates of PC-based departmental computing will be concerned with any changes that in effect recentralizes control over system access and operation.

There are now more than 1,500 software packages generally available on the market for human resource/payroll applications. This number is increasing constantly, especially in the area of PC-based applications for human resource functional specialties. Software evaluation and selection is problematic for everyone involved in the process.



The implementation of numerous standalone specialty systems for human resource functional areas such as compensation and benefits, affirmative action, and applicant tracking, has created major systems integration and efficiency issues for many organizations. General HR/payroll systems available on the market may not have the specific depth of functionality of the specialized system. These systems are also usually developed by different vendors using different data base technologies. Rewriting or even interfacing all of the specialty systems becomes a very expensive and time-consuming task.

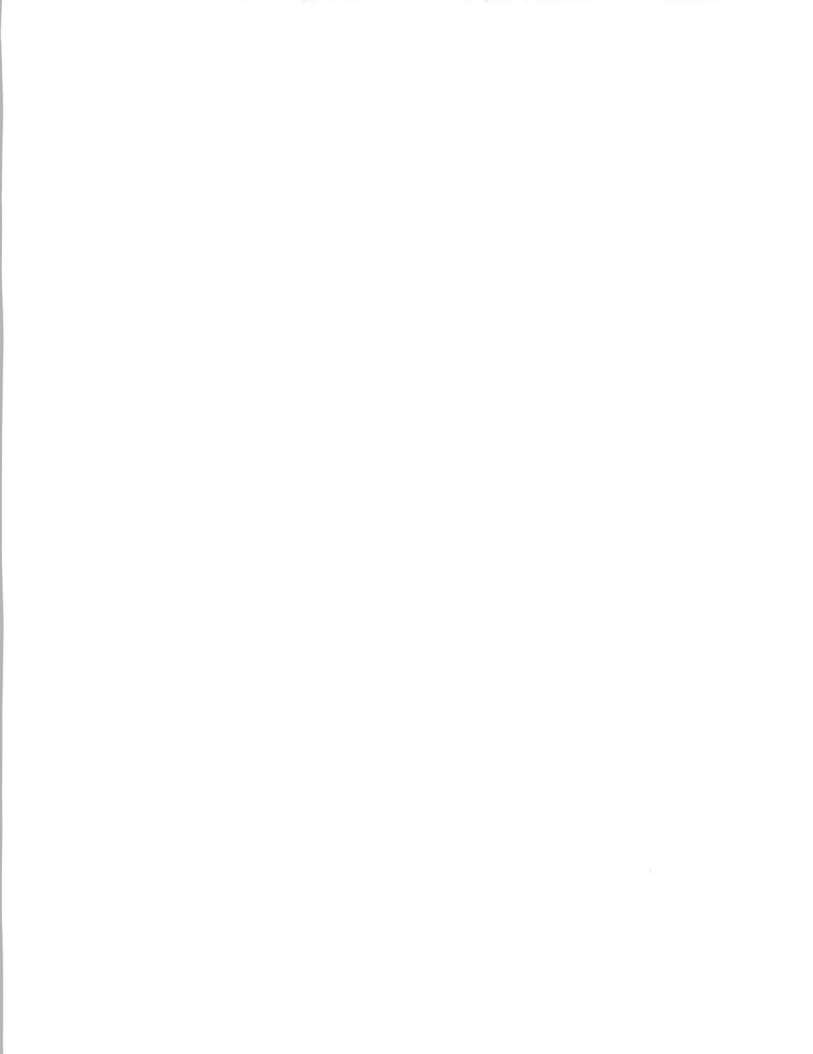
Data base inquiry and reporting remains a major issue for most human resource system users. Flexible, easy-to-use report writers and real-time inquiry systems for meeting ad hoc and standardized reporting requirements remain high on the priority list for purchasers of HR systems. The ability to quickly and efficiently develop graphical displays of data is of growing importance to users at all levels.

Since human resource systems must change dynamically as organizations change, it is imperative that it be possible to quickly and cost-effectively modify most aspects of the system including data dictionaries, field definitions, screen formats, calculations and report formats. It is therefore essential in human resource systems to keep major, time-consuming programming changes to a minimum.

Effective user training and education continues to be a challenge for most organizations implementing new HR/payroll systems. Costs for training personnel in all aspects of system implementation and ongoing operation can be considerable and must be taken into account to insure success. The ability of the vendor to provide initial and ongoing user and technical training support is a key consideration for most system selections.

Vendor-provided technical support is critical to the successful implementation of human resource/payroll projects. Human resources/payroll systems have grown in size and complexity, and while end users have grown much more sophisticated over the years, most lack the technical skills and preparation to successfully manage a system implementation project. In-house IS staffs frequently will not have the application expertise or knowledge of newer data base systems to independently support users in systems implementation effort. Therefore, the role of the vendor in this process has continued to grow in significance.

It is not uncommon for human resource systems software packages to "sit on the shelf" due to lack of internal company resources for implementation and administration. The failure to successfully implement the system may be due to changing corporate priorities, but often it is due to failure in the planning process to fully identify implementation requirements and allocate sufficient resources to get the project done on a timely basis.



D**Key Applications**

The growth in the availability of human resource/payroll system software applications over the last several years has been remarkable. Exhibit III-3 lists 42 different human resource application areas for which products are currently on the market. The bulk of this expansion of products has occurred in the PC marketplace. The number of programs available has increased from 275 programs in 1986 to more than 1,500 in 1993. Fully 73% of the available software has been written for the PC platform. The strong, continued growth of PC-based human resource software applications has been driven by the availability of relatively inexpensive, but very powerful relational data base technology and advanced software development tools. These tools have allowed developers to bring sophisticated products to the marketplace much faster and at a significantly lower cost than typically has been the case for midrange- and mainframe-based software.

Beyond a question, the hottest application areas within human resources have been, and will continue to be for the foreseeable future, all aspects of employee benefits administration. Within the benefits area, flexible benefits administration is the most important area of growth. The criticality of this area is apparent from the number of benefits applications now on the market (536). Benefits-related application software accounts for more than 37% of all the human resource software on the market and is the largest specialty area in total number of packages.

According to responses to INPUT's end-user surveys, a significant level of interest is being expressed by end users in applicant tracking and employment-related software. Particularly, user interest in the application of scanning technology to aspects of recruitment and employment is clearly on the rise.

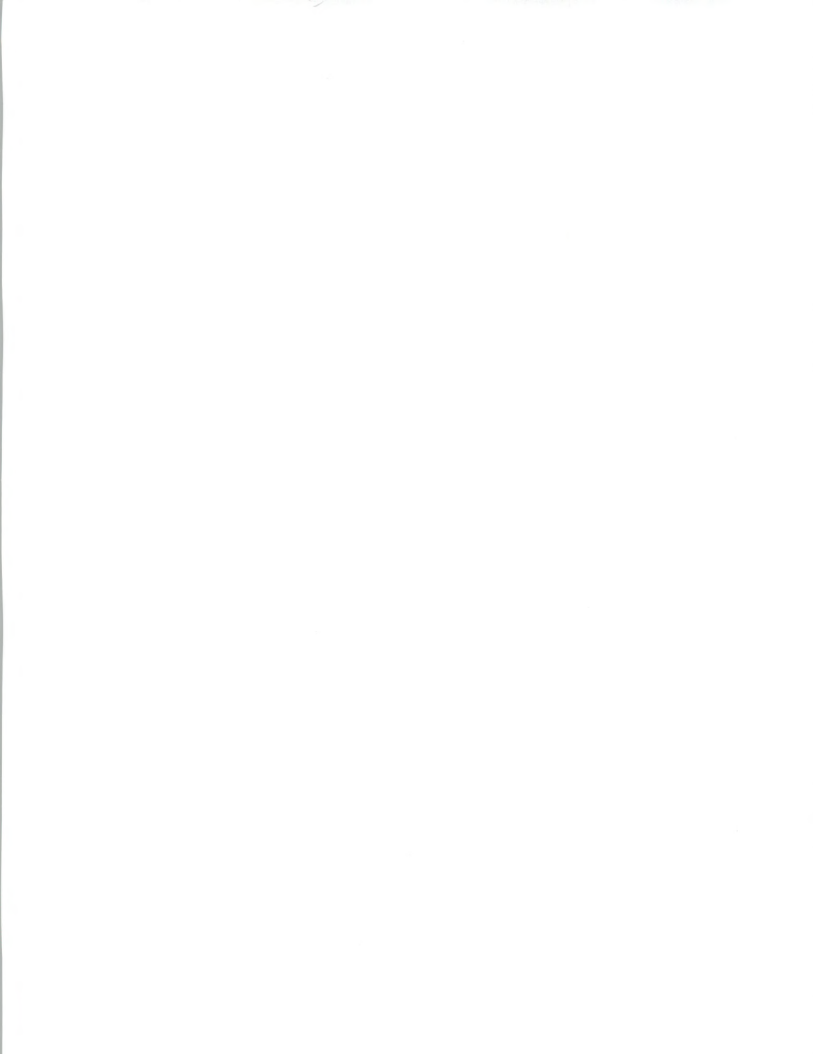


EXHIBIT III-3

Human Resources Application Software Packages

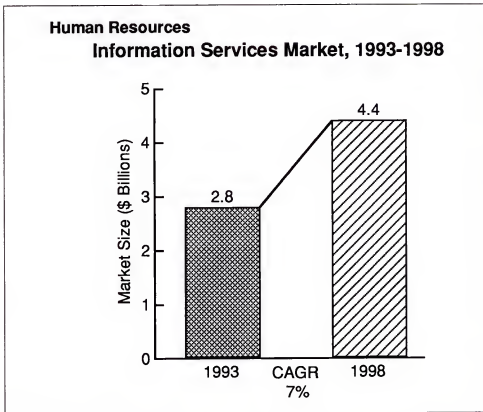
Human Resource Specialty	PC	Midrange	UNIX	Mainframe
Applicant Tracking	46	4	7	4
Skill/Employment Testing	52	0		
Relocation	7	2	2	2
Equal Employment Opportunity	33	2	4	0
Job Analysis/Description	17	0	0	0
Job Evaluation	21	0	0	0
Salary Survey	7	0	0	0
Salary Planning/Budgeting	5	0	0	0
Sales Compensation	3	0	1	0
International Compensation	6	0	0	0
Executive Compensation	10	0	1	0
Integrated Compensation Admin.	16	0	0	0
Defined Contribution Plan Admin.	58	13	4	12
Defined Benefit Plan Admin.	25	5	5	11
Benefit Calculations	64	2	6	2
Pension Trust	9	1	2	2
Pension Plan Distributors	1	1	1	3
Section 450 Testing	3			
Flexible Benefits	56	5	5	7
Health Claims Administration	30	14	10	10
Health Care Cost Control	36	7	6	16
COBRA Compliance	15	2	2	0
Benefits Communications	20	0	1	2
Canadian Pension Administration	13	2	2	3
Integrated Benefits Admin.	18	8	6	7
Training Management	85	7	8	2
Career Development	20	1	0	
Organization Development	19	0	0	0
Performance Management	62	0	1	0
Human Resources Planning	14	0	0	
Organization Charting	18	0	0	0
Position Control	1	0	0	10
Personnel Policy	13	0	0	0
Survey Processing	25	0	1	0
Labor Relations	9	0	1	0
Safety/Health/Environ.	78	15	6	9
Risk Management	16	4	7	3
Employee Health	52	0	2	
Employee Scheduling	19	1	3	0
Attendance/Time Keeping	19	3	6	4
Total Quality Management	20	1	0	0
Payroll	43	18	16	7
Comprehensive HRMS	69	31	28	16
Total Packages	1,153	148	146	137
Grand Total: 1,584				

IV

Information Services Market Forecast

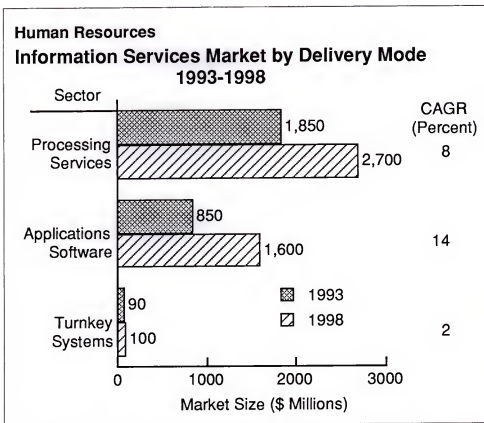
Exhibit IV-1 is INPUT's information services forecast for the human resources cross-industry sector. 1993 reserves of \$2.8 billion will grow at a compound annual growth rate of 10% to \$4.4 billion in 1998.

EXHIBIT IV-1



As shown in Exhibit IV-2, the largest human resources sector delivery mode will continue to be processing services. The three delivery modes are discussed below.

EXHIBIT IV-2

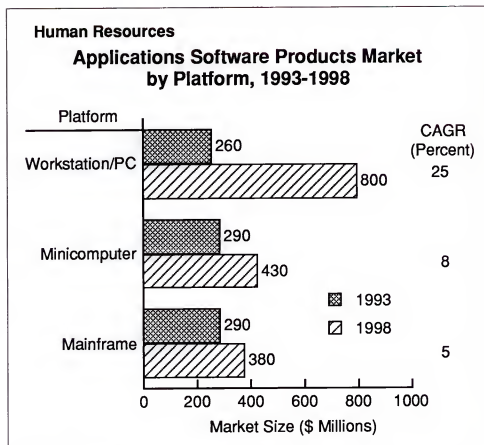


A

Application Software Products

Exhibit IV-3 shows the growth expected in cross-industry human resource applications by platform size.

EXHIBIT IV-3



Mainframe - As the trend toward downsizing and outsourcing of mainframe operations continues, expenditures on new mainframe-based solutions will continue to decline significantly. For the most part, expenditures on mainframe-based products will be for maintenance/licensing fees for existing human resource applications and for product upgrades and enhancements. Large corporations with major long-term investments in centralized, mainframe-based payroll systems will continue to seek ways to maintain their current systems while providing greater user access to human resource data by installing human resource application software on PC-LANS or client/servers. An area of continued growth for mainframe-based human resource/payroll systems will be in DB2-based software upgrades.

Minicomputer - As with mainframe-based human resource/payroll system solutions, the growth in minicomputer-based human resource systems has been negatively impacted by the growing popularity of PC-LAN and client/server-based human resource software. This trend will continue for the foreseeable future. Another significant growth inhibitor in the midrange marketplace has been the absence of vendor-provided human resource software for platforms other than the IBM AS/400. The AS/400

vendor market place is well-established at this point and is quite competitive. Until recently, there has been an acute shortage of competitive vendors and software products entries for the DEC, HP, and other mid-range of minicomputer systems.

Significant developments are taking place in this marketplace, however, which will be definite growth promoters. The midrange market is benefitting from: 1) the emergence of vendors dedicated to the DEC and HP marketplaces that have viable human resource/payroll product offerings 2) development of UNIX-based/open system architectures that allow human resources/payroll products to operate on different hardware platforms. In large multisite corporations, midrange systems are increasingly being used as file-servers to a PC-LAN or gateways to host mainframe-based human resource/payroll systems.

The midrange or minicomputer market for human resource systems remains strongest for AS400-based systems in specific niche markets such as manufacturing, health care, or government.

Workstation/PC - The migration to LAN-based human resource software solutions continues to be the predominant trend for employers of all sizes. However, it is clear that momentum is building rapidly in favor of client/server-based solutions for larger employers with multiple locations and organizational entities requiring access to a broad range of corporate human resource and payroll data for processing and reporting purposes.

While client/server solutions may pose significant technical and administrative problems and may be cost-prohibitive for many smaller and mid-size employers, it is expected that client/server will be the dominant delivery mode for larger employers by the end of the forecast period. LAN-based solutions will continue to perform strongly for smaller, less-complex organizations throughout the forecast period. Over the next two years, all of the leading human resource/payroll systems vendors should have delivered some form of marketable client/server product. The rate of expenditure on these products should accelerate sharply as the client/server products from the various vendors hit the market.

B

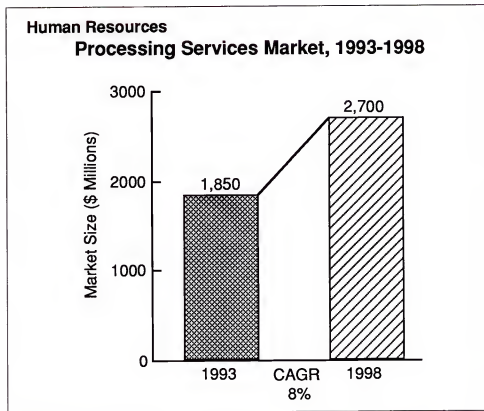
Processing Services

Payroll processing services continue to be the largest and most significant delivery mode in the human resources marketplace, in terms of overall expenditures. While payroll processing services face some important challenges in the coming years, it is expected that the five-year compound annual growth rate will increase to 8%, reflecting increased market penetration related to vendor expansion of human resource services.



Exhibit IV-4 provides INPUT's 1993-1998 forecast for processing services within the human resource cross-industry sector.

EXHIBIT IV-4



Payroll-processing service vendors are faced with the following major issues that have a direct impact on how well they perform:

Uncertain economic recovery - The slow, uneven pace of economic recovery in many industries adversely affects revenue growth in this sector because payroll service processing fees are typically based on the number of checks processed or size of the payroll. Fewer paychecks processed translates directly into less revenue.

On-line access to payroll data - This development has posed major challenges for most payroll services. More customers are asking for direct access to their payroll data for reporting purposes. Increasingly, more complex clients are seeking enhanced reporting capabilities and the ability to import payroll masterfile and payroll historical data into their own human resource system. For clients without in-house human resource systems, payroll service companies must be able to capture, maintain, and provide flexible, easily customizable, standard, and ad hoc reporting capabilities for a wide variety of nonpayroll data.

To deal with these increasing service demands, payroll service companies have had to greatly expand the scope of services provided. How these vendors meet their customers' needs in these expanded service areas will be the key to their continued growth.

Downsizing - The current trend toward downsizing of mainframes and off-loading of applications will benefit payroll services to some degree. Some companies are choosing to outsource their in-house payrolls as a result of downsizing. However, others are migrating their payrolls to smaller platforms and to the extent that this occurs, growth in the payroll processing services market will be inhibited. The advent of powerful open system, workstation-based payroll products, along with the emergence of high-end client/server payroll products, creates new competitive challenges for payroll service companies. Payroll-processing companies will have to continue to work hard to expand and improve services to clients to maintain their loyalty and their business.

Integration of Payroll, Benefits and Human Resources Reporting - Increasingly, employers are seeking ways to more efficiently and cost-effectively handle payroll, benefits and human resource reporting needs. The complexity of integrating external payroll services with in-house human resource and benefits systems is a potential growth inhibitor. Recognizing this, leading payroll service vendors have started providing expanded human resource and benefits data base services to clients. To the extent that the payroll services are able to provide a more seamless, integrated payroll, human resources, and benefits-reporting capability, their opportunities for growth will be significantly enhanced.

C

Turnkey Systems

Most human resources and payroll system software vendors market their products independent of the hardware, and few are involved in marketing turnkey solutions. Human resource software is typically installed on existing equipment or equipment purchased through hardware vendors. Software vendors will usually make recommendations for appropriate hardware acquisition and, in some instances, will assist with hardware selection. Where turnkey systems exist, human resource and payroll applications are usually part of an industry-specific turnkey package, such as health care, legal offices, or manufacturing operations.

The inherent complexity of integrated human resource/payroll systems and the variability in user requirements and ongoing maintenance needs all act as growth inhibitors for the turnkey markets. It is therefore unlikely that there will be any significant growth in this delivery mode during the forecast period.

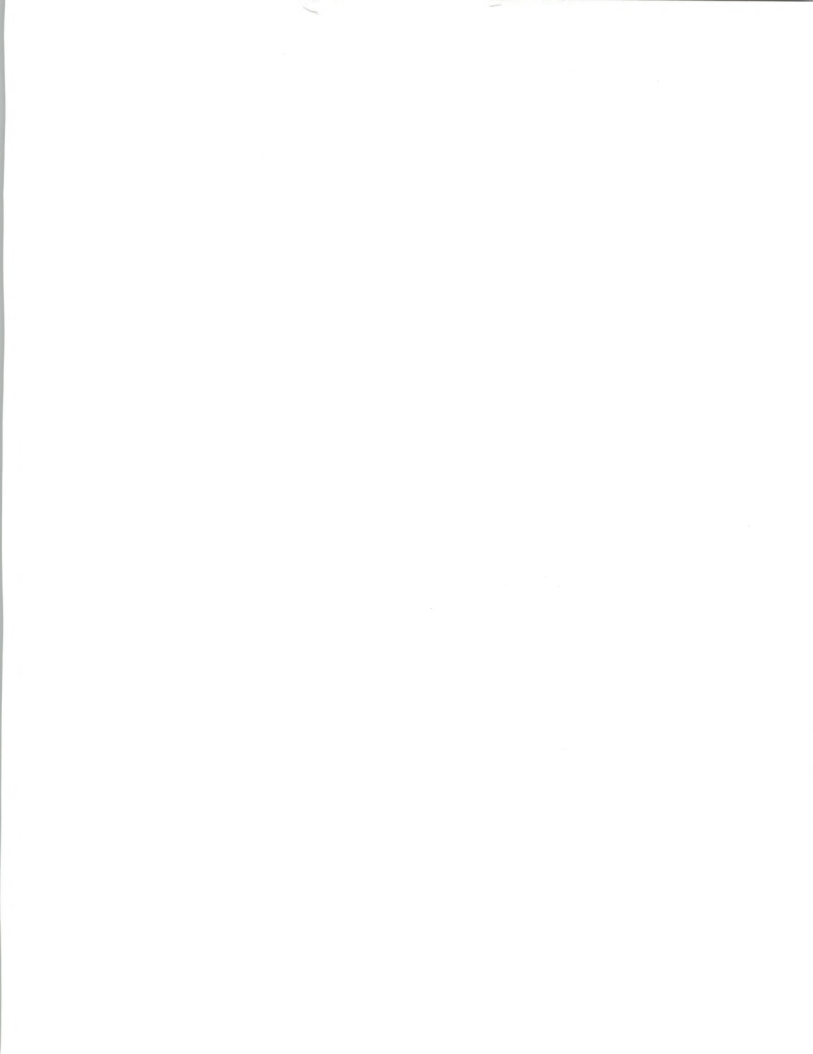
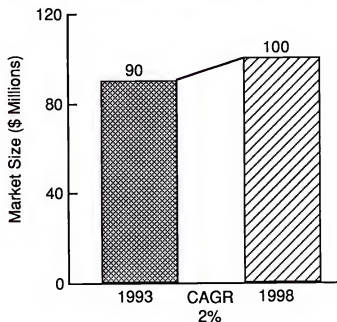
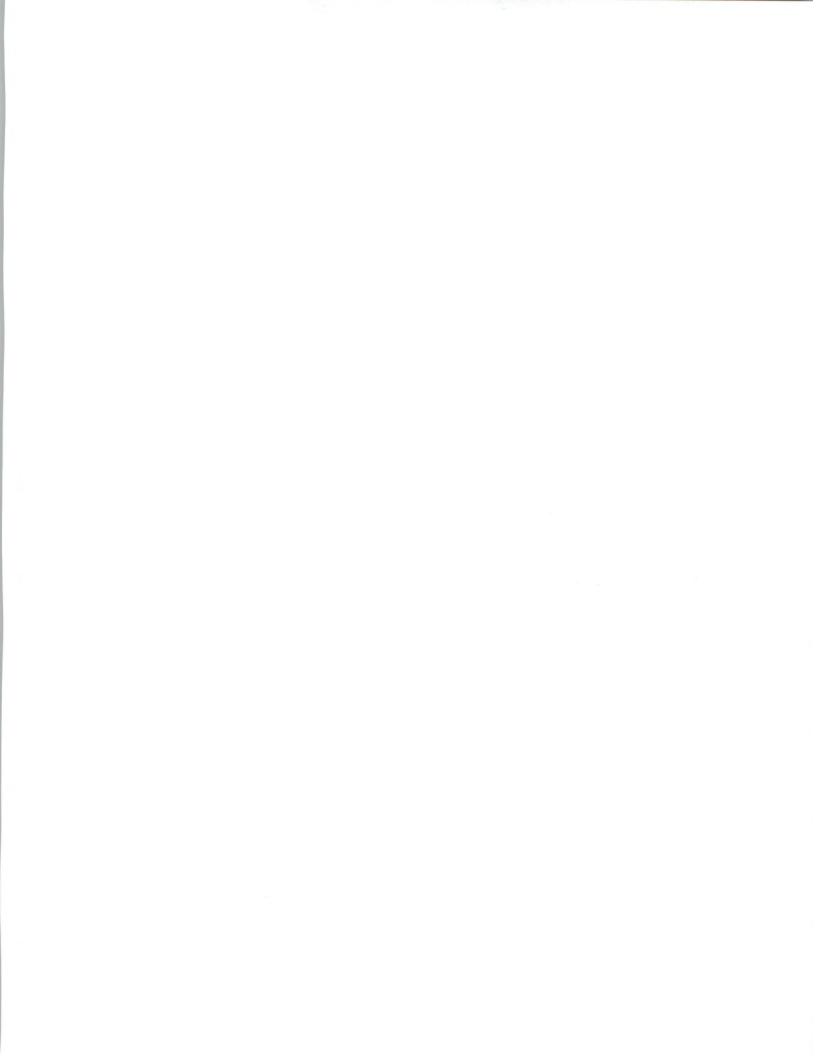


Exhibit IV-5 shows the growth expected in cross-industry human resources turnkey systems.

EXHIBIT IV-5

Human Resources**Turnkey Systems Market, 1993-1998**



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Vendor Competition

A

Introduction

This chapter presents a description of information services vendors serving the human resources cross-industry sector. This chapter is divided into the following sections:

- Competitive Climate
- Competitive Positioning
- Leading Vendor Profiles

B

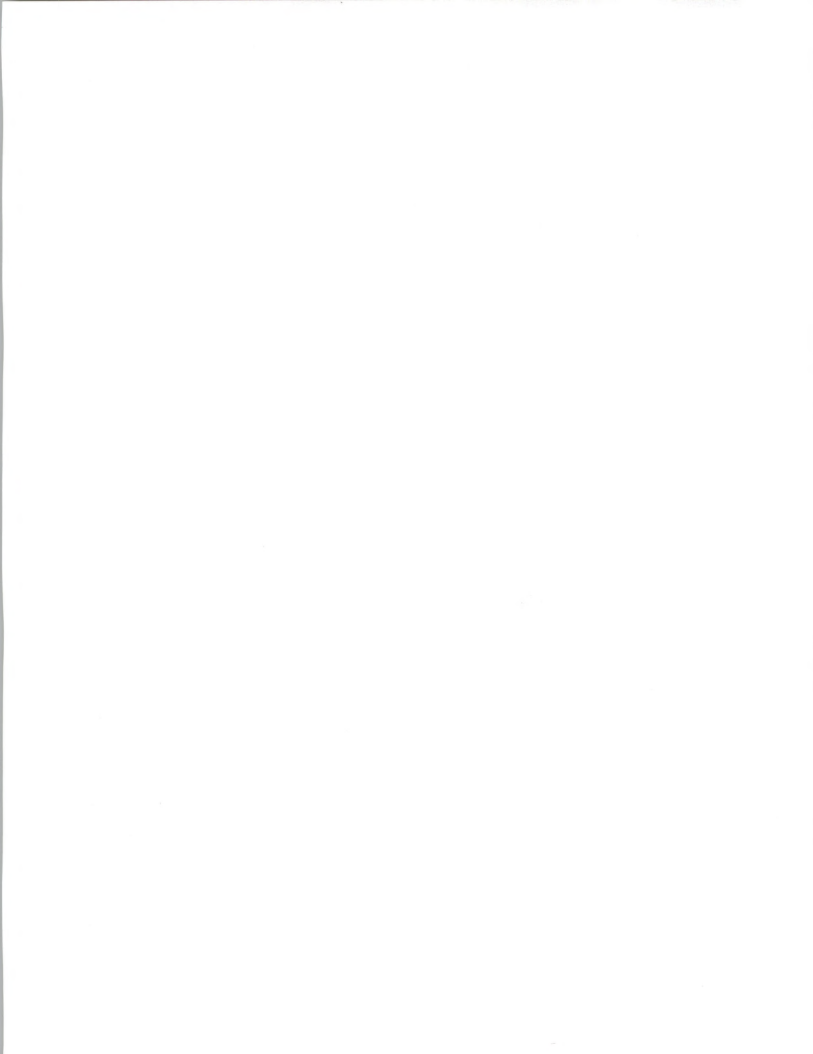
Competitive Climate

The competitive climate in the human resources cross-industry sector market is driven primarily by rapidly changing technologies and the rising demand for human resource systems with increased power, flexibility, and functionality.

The marketplace for human resource systems is changing rapidly, as vendors scramble to develop and market products that are relational data base-driven and that can function well in a multiplatform environment. Vendors in this marketplace have to compete successfully not only in a rapidly changing technological environment, but also in a business environment where systems requirements are in a constant state of flux.

In response to changes in the marketplace, as noted previously, every major vendor of human resource/payroll systems, regardless of whether it has in the past been mainframe, midrange, or PC-based, is struggling to develop some form of client/server or open system version of its products.

Emerging technologies such as image scanning, voice recognition, and graphical user interfaces are increasingly important to the future competitiveness of vendors in the human resources cross-industry market sector.



C

Competitive Positioning

Vendors in the human resources cross-industry sector report that the most significant force shaping the competitive environment is the migration to client/server architecture. The race is heating up among the vendors to develop and release client/server-based products which are full-featured, rich in functionality, and provide relatively seamless integration of human resource/payroll data bases with various subsystems and other organizationwide systems requiring human resource data.

Expansion of vendor-provided client services to better support customer system implementation, customization, training and system management is viewed as vital to the maintenance of vendors' competitive position.

Increased vendor alliances, acquisitions, and consolidations are taking place as vendors seek to acquire market share, access to new markets, or technical expertise. Examples of these activities include ADP's marketing agreement with PeopleSoft, Ceridian's acquisition of Revelation Technologies' application development division and SPECTRUM Human Resource Systems' acquisition of Comshare's PC/Profiles.

The leading providers of human resources software are shown in Exhibit V-1.

EXHIBIT V-1

Human Resources**Leading Applications Software Vendors, 1993**

Platform	Vendor	Market Share (Percent)
Mainframe	Dun & Bradstreet	40
Minicomputer	Software 2000	10
Workstation/PC	PeopleSoft SPECTRUM	15 4

Dun & Bradstreet clearly holds a dominant share of the mainframe sector, while the smaller equipment platform categories are more fragmented.



Exhibit V-2 identifies the leading providers of payroll services.

EXHIBIT V-2

Human Resources

Leading Payroll Processing Service Vendors, 1993

Vendor	Market Share (Percent)
ADP, Inc.	60
Ceridian	10

As in past years, ADP continues to occupy a commanding position in this sector. It seems unlikely that ADP's position can be threatened by competitive forces, other than migration to in-house systems, which will only happen infrequently.

D

Vendor Profiles

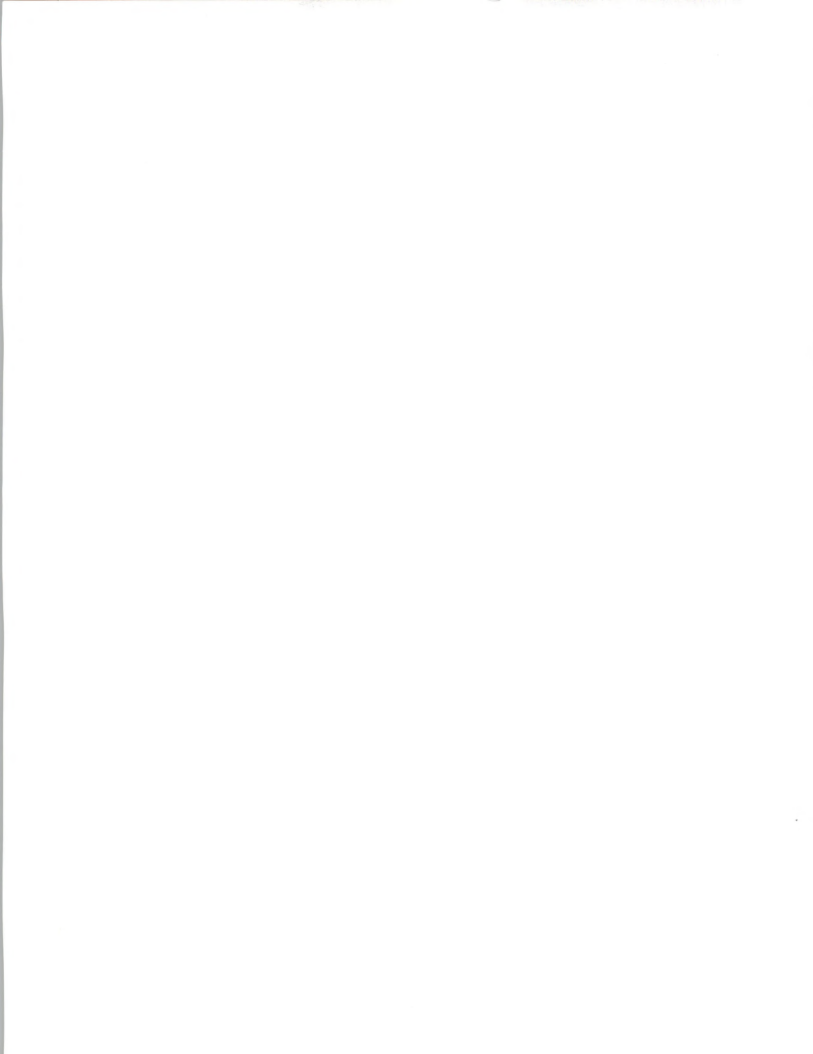
1. Integral Systems, Inc.

2185 North California Boulevard
Walnut Creek, CA 94596-9496
(510) 939-3900
Interim President and CEO: Kathy Urbelis
Private Corporation
Total Employees: 440
Total Revenue, Fiscal Year End
3/31/93: \$63,000,000 (INPUT Estimate)

a. Company Background

Integral Systems, Inc., founded in 1972, is a worldwide provider of human resources and other core business application software and support services that address the enterprisewide information needs of Fortune 1000 companies.

The company's human resource management, financial management, and manufacturing and distribution applications are available for IBM main-frame, midrange, and desktop platforms.



Integral currently has more than 6,000 installations at over 2,400 sites worldwide serving 1,600 customers, including governmental entities, public and private businesses serving the health care, education, financial services, telecommunications, automotive, retail, and transportation industries.

b. Strategy

Integral is using CASE engineering tools and information modeling to build its next generation of products.

A key component of Integral's product development strategy is the support of industry standards and tools. As an IBM business partner, Integral's products are built in conformance with IBM's SAA strategy for enterprisewide computing, and all CASE-based products are engineered in compliance with IBM's AD/Cycle framework for applications development.

Integral is actively working on development of client/server products that enable end users to distribute business functions and data to the level that is most appropriate for each organization. The client/server products are being designed to work with the existing mainframe-based applications to preserve end-user investments in existing on-line systems, while offering a foundation for cooperative processing.

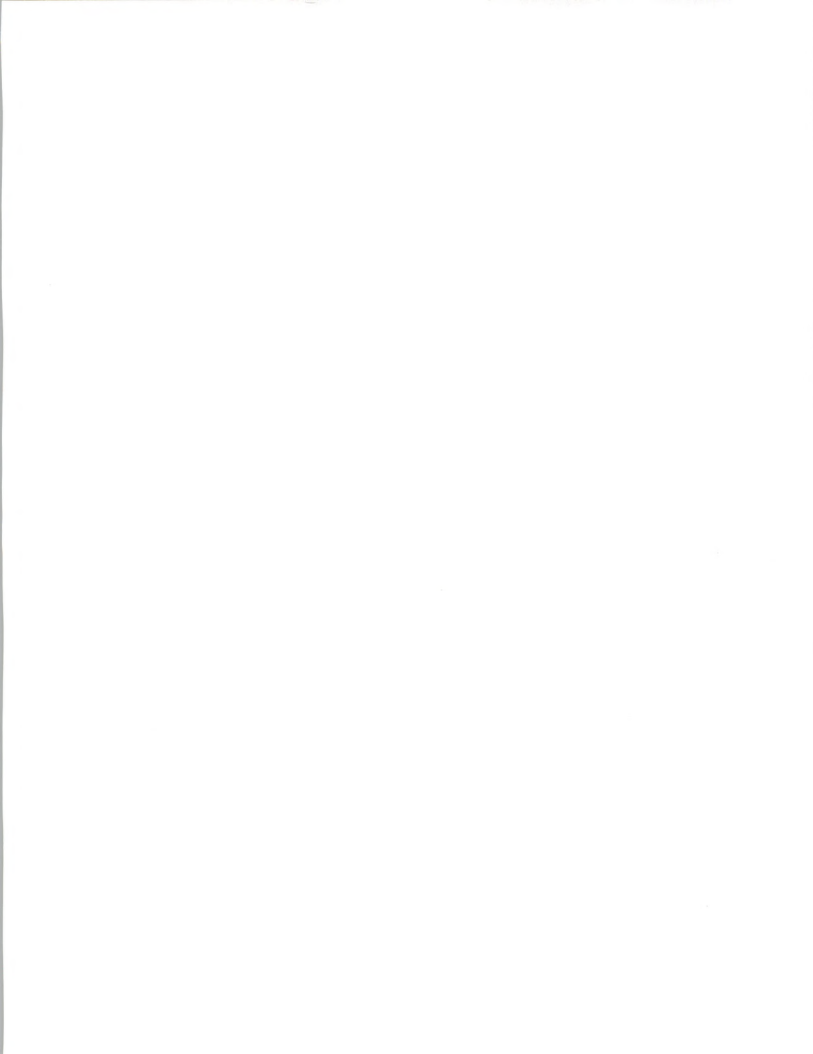
c. Products and Services

Integral's mainframe software products support human resource management and financial management. The products run under various operating systems, including MVS, MVS/XA, DOS/VSE, and OS. Various data base environments are supported including DB2.

Integral's mainframe human resource applications include:

- Applicant Tracking
- Benefits Administration
- Flexible Compensation
- Pension Administration
- Human Resources Administration
- Pension Administration
- Payroll Processing
- Checkwrite
- Position Control

Integral also offers HR-1, a PC workstation-based HRMS that can be interfaced with the mainframe product for companies that are decentralized for recordkeeping and reporting, but wish to maintain a central human resources data base.



d. Key Issues

- Timely development and roll out of its client/server human resource/payroll products. Thus far, a client/ server version of the Integral human resource system has been announced. Payroll is under development.
- Reducing reliance on revenues from traditional mainframe-based "legacy" system sales and support.
- Successfully migrating existing customer base from mainframe to client/server products.

2. PeopleSoft, Inc.

1331 North California Boulevard
Walnut Creek, CA 94596
(510) 946-9460
Dave Duffield, Chairman & CEO
Public Corporation
Total Employees: 173
Revenue: Fiscal Year End
12/31/92: \$31,565,000

a. Company Background

PeopleSoft, founded in 1987, specializes in human resources and financial management applications software products that use client/server workstation technology. The products are designed for use throughout medium- and large-sized organizations. The company's first product, the PeopleSoft Human Resource Management System (PS/HRMS), was released in April 1989.

PeopleSoft's founder, David A. Duffield, previously founded two other software firms, Information Associates, Inc. (IA), founded in 1968, and Integral Systems, founded in 1972. Information Associates is now a subsidiary of D&B Software. Duffield was chairman and chief product architect at Integral until his departure to form PeopleSoft in 1987.

PeopleSoft's headquarters are located in Walnut Creek, California. Sales and service offices are located in Atlanta, Georgia, Bloomington, Minnesota, Chicago, Illinois, Columbus, Maryland, Teaneck, New Jersey, and Toronto, Canada.

b. Strategy

PeopleSoft primarily targets the "high-end" of the market for its products: the Fortune 1000 companies and medium-sized organizations or divisions requiring enterprisewide software applications. The product lines offered are cross-industry applications.



PeopleSoft's products have been specifically designed to work on the client/server model of computing. The products are designed to work on a wide range of hardware platforms, including IBM mainframes, UNIX-based midrange systems from Digital Equipment Corporation, Hewlett-Packard computers, and personal computers operating on a local-area network.

Since its entry into the market place three years ago, PeopleSoft has been the market leader in the client/server human resource system software arena. However, since then competition has been steadily increasing as other established HR systems vendors and new start-ups rush to bring out their own client/server products.

With the delivery of its General Ledger financial application in October of 1992, PeopleSoft entered a new competitive arena. The company faces a more severe challenge in moving from its initial niche in the market place, where there were no direct competitors. The financial applications market is much broader and there are more established competitors.

One of PeopleSoft's strategic goals is to expand its international presence. PeopleSoft currently offers a Canadian version of PS/HRMS and has established sales and marketing operations in Western Europe and the Far East.

In 1992, PeopleSoft signed an agreement with Automatic Data Processing (ADP) to license PeopleSoft's PS/HRMS product line to its clients in the United States and internationally.

Development and marketing agreements have also been formed with Hewlett-Packard (HP) and Microsoft.

c. Products and Services

PeopleSoft's primary human resources product is the PS/HRMS human resource system that includes payroll, human resources, and employee benefits applications. PeopleSoft's product architecture features Microsoft Windows 5.0 graphical user interface on the front end and SQL relational data base on the back end (DB2, Gupta SQLBase, Microsoft SQL server, and Oracle). The product is designed to operate on a variety of computers, including LANs, midrange and mainframes.

PS/HRMS includes all the basic functions necessary to administer a human resources department:

- Employee Recordkeeping
- Compensation Administration
- EEO/Affirmative Action Reporting
- Grievance/Disciplinary Tracking
- Health & Safety



- Recruitment
- Position Control
- Career Planning
- Training & Development
- Skills Inventory

PS/HRMS pricing depends on the hardware platform for the system. A basic LAN configuration begins at \$150,000; the top of the price range is approximately \$700,000 for configuration with a DB2 mainframe server.

d. Key Issues

- PeopleSoft has had a head start on the rest of the vendors in the client/server human resources system market and has positioned itself as a high price, high-value company. As competition increases, margins will be more difficult to maintain.
- The product-pricing structure tends to put PeopleSoft beyond the reach of many mid-sized companies who would otherwise be interested in a client/server approach.
- Providing a satisfactory level customer support will become more of a challenge, as the company increases its product offerings and the number of customers grows.
- PeopleSoft has a very experienced management team that has received high marks from the software industry for its knowledge and capabilities.
- In 1992, PeopleSoft went public, raising \$35 million through a stock offering of 3,000,000 shares. This allows PeopleSoft to continue aggressive product development and market expansion.

3. Software 2000, Inc.

25 Communications Way

Drawer 6000

Hyannis, MA 02601

(508) 778-2000

Robert A. Pemberton, Chief Executive Officer

Private Corporation

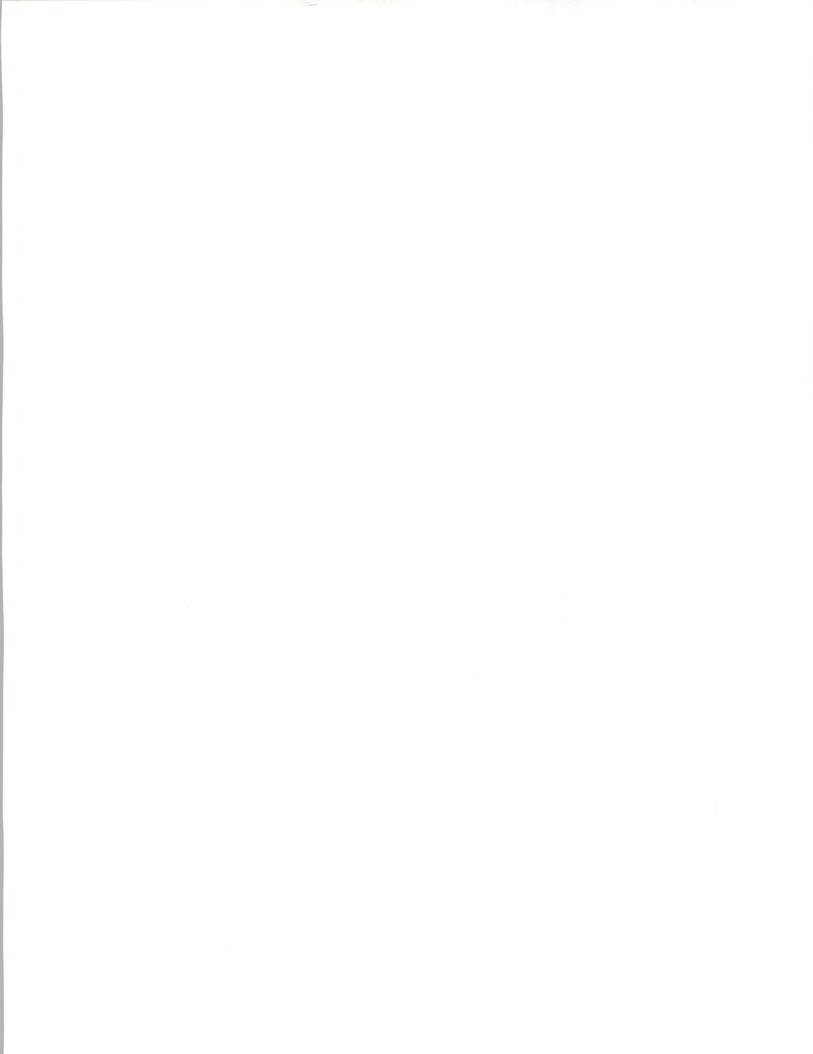
Total Employees: 460

Total Revenue, Fiscal Year End

12/31/92: \$45,000,000

a. Company Background

Software 2000, Inc. was founded in 1981 by Robert A. Pemberton and is a leading developer and marketer of financial, human resources, environmental, process manufacturing and materials management software for the IBM AS/400 and related technologies.



Software 2000 has had ten consecutive years of revenue growth and has no long-term debt. Revenues for 1992 were up 44% from the previous year.

b. Strategy

The company is actively pursuing a strategy to leverage the AS/400 as a server in a client/server environment. In order to respond to the demand for intuitive GUI-based applications, Software 2000 has begun the development effort to evolve its products to support an object-oriented client/server architecture.

Software 2000 believes that the release of OS/400 Version 2, Release 2 confirms IBM's commitment to the role of the AS/400 as the core of IBM's distributed network strategy.

Software 2000's new architecture, UNITY, is designed to provide an evolutionary path for their customers through client/server to distributed business computing solutions. Software 2000 plans to begin delivery of their client/server applications as a series of independent task-specific modules called Business Objects.

c. Products and Services

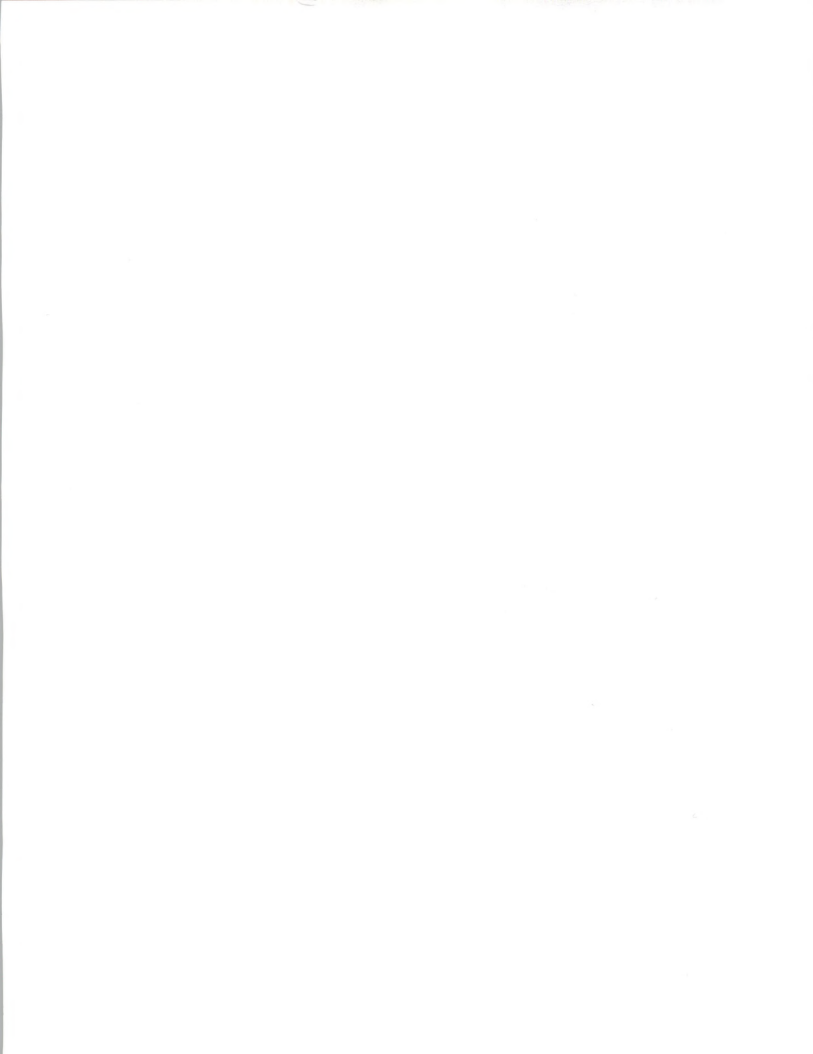
Software 2000 provides an integrated set of applications for managing all aspects of an organization's human resource and payroll operations. Applications included in Software 2000's Human Resource product line include payroll, personnel administration, flexible benefits and defined contributions. Specific features of Software 2000's Human Resource 2000 applications include:

Human Resources

- Comprehensive Employee Data Base
- Unlimited Employee History
- Applicant Tracking
- EEO Reporting
- Health & Safety
- Job Evaluation
- FTE Reporting
- COBRA Support
- Salary Planning
- Professional Licensing
- Position Control

Payroll

- Automatic Pay
- User Controlled Pay Cycles



- Unlimited User-defined Earnings and Deductions Types
- Arrears Processing
- Labor Distribution
- US & Canadian Taxation
- Direct Deposits
- Leave Accruals
- 401(k) Reporting
- Check Reconciliation
- Payroll History

d. Key Issues

- Software 2000 has a strong record of growth and profitability. Revenues have tripled in three years.
- Software 2000 will need to expand its marketing capabilities as it moves into the client/server arena, where it has not previously had a presence.
- Successful implementation of Software 2000's client/server and open system strategies will be key to the continued growth and prosperity of the company.
- There is a strong international market for AS/400 software products that can add materially to Software 2000's growth, if it can continue its success in its expansion of the company's international operations.

4. SPECTRUM Human Resource Systems Corporation

1625 Broadway
Suite 2700
Denver, CO 80202
James E. Spoor, President
Private Corporation
Total Employees: 120
Total Revenue, Fiscal Year End
12/31/92: \$8,900,000

a. Company Background

SPECTRUM Human Resource Systems Corporation is a closely held corporation founded by James E. Spoor in 1984. SPECTRUM is a leading developer and marketer of microcomputer-based software systems and related services for use in human resources, benefits administration, and payroll processing.

A pacesetter in its niche, SPECTRUM Human Resource Systems developed products have been installed by approximately 3,500 public and private sector employers in the U.S. and internationally. SPECTRUM clients range from companies with less than 100 employees to Fortune 1000 companies with over 5,000 employees.

b. Strategy

SPECTRUM, since its inception, has focused its business on developing and marketing microcomputer-based human resource systems. Its strategic plan calls for continued focus on its core human resources business.

Last year, SPECTRUM significantly expanded its core business with the introduction of its first payroll product, HR/Pay.

SPECTRUM has achieved considerable success through its strategy of licensing its products for marketing and distribution by other vendors under their names and trademarks. At present, SPECTRUM has OEM, license and remarketing agreements with the Toronto Dominion Bank, Peterborough Software, Ltd., HRSoftware GmbH, Andersen Consulting, Merchants and Manufacturers Association, and AAIM Management Association.

SPECTRUM has announced plans to move into the GUI/client/server arena with a totally new version of its human resource management system, which is currently undergoing Beta testing. The new product, "HRVantage" is a Windows-based human resource system developed using Microsoft's new Access data base management system.

c. Products and Services

SPECTRUM offers a comprehensive line of microcomputer-based systems designed to meet the needs of human resource, payroll, benefits training, and development functions.

The primary products from SPECTRUM include HR/2000, a comprehensive human resource system, HR/1200, a scaled-down version of the mainline HR/2000 product that is sold to smaller companies, AM/2000, Applicant Management System, TD/2000, Training and Development Administration System, and HR/Pay, a newly released, fully integrated payroll/human resource system. SPECTRUM also markets a flexible benefits administration system.

HR/2000, SPECTRUM's primary product, offers broad functionality in the basic system that can be augmented by addition of several expansion "modules" or standalone systems that can be integrated with the main product. As an example, a customer who may have a specific need for salary-planning capabilities that go beyond the basic system can separately purchase and add SPECTRUM's Salary Planning module to the core system. Expansion modules include:

- Job evaluation
- Attendance tracking
- Position control



- Pay planning
- COBRA
- Succession planning
- Executive compensation
- Health, safety, and Hazmat management.

d. Key Issues

- SPECTRUM has emerged as the market leader among the companies providing PC-based human resource system solutions.
- SPECTRUM has developed a strong and loyal customer base and has developed a positive reputation in the marketplace for providing consistent, high quality customer support, training, and client services.
- With the release of HR/Pay, SPECTRUM expanded into a new market, which it has not previously been in directly. There are already numerous payroll alternatives for SPECTRUM's target market for the HR/Pay, including ADP Inc. and Ceridian Employer Services, and it will be a challenge for SPECTRUM to establish its credentials as a payroll product vendor.

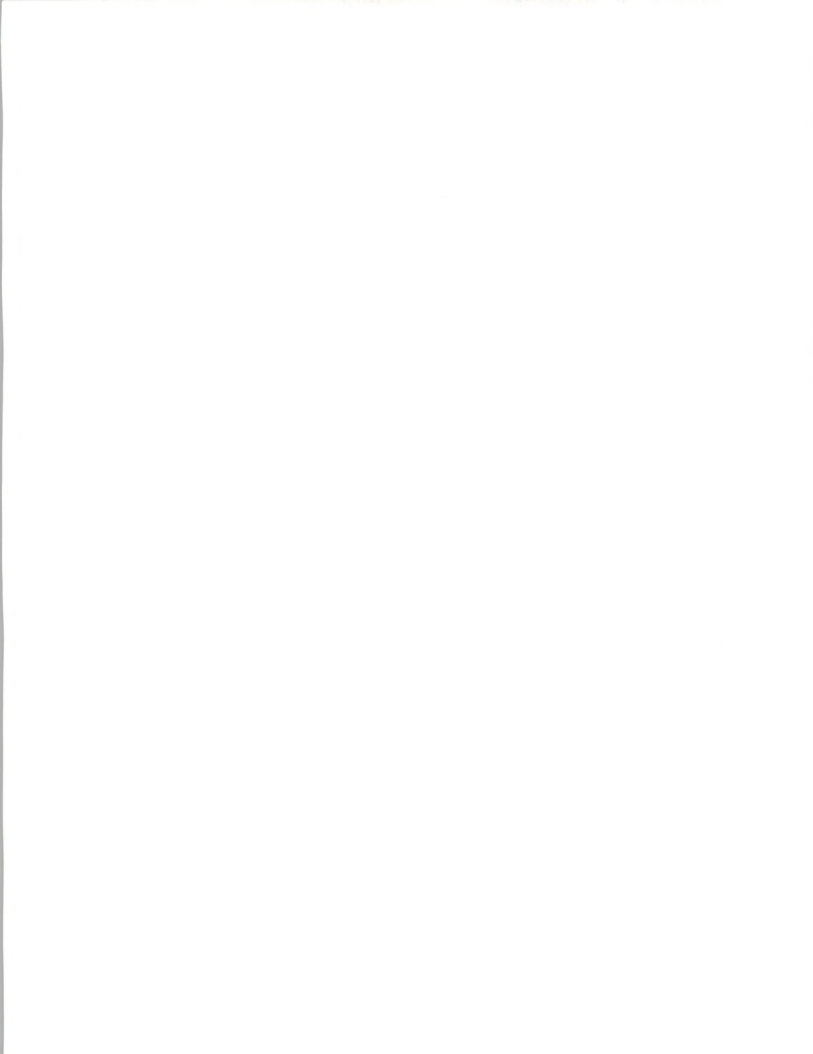
5. Automatic Data Processing, Inc. (ADP)

One ADP Boulevard
Roseland, NJ 07068
(201) 994-5000
Josh S. Weston, Chairman & CEO
Public Corporation
Total Employees: 20,500
Total Revenue, Fiscal Year End
6/30/92: \$1,940,571,000

a. Company Background

ADP was formed in 1949 as Automatic Payrolls, Inc. Its name was changed to Automatic Data Processing in 1960, and it became a public corporation in 1961. ADP is currently organized into four major operating groups:

- Employer Services, with more than 10,000 employees, provide payroll processing, payroll tax filing, job costing, labor distribution, unemployment compensation management, and personnel information services.
- The Brokerage Services Group provides "back-office" recordkeeping processing services, "front office" data base and stock quotation electronic information services to the investment/brokerage industry. It also provides Proxy Services shareholder mailing services.



- ADP Dealer Services provides processing and network services and turnkey systems to auto, truck, farm, and heavy equipment dealers.
- Automotive Claims Services provides claims estimating processing services and electronic information services for vehicle evaluation and parts locating and pricing to automobile insurers, manufacturers, and repairers.

Payroll and related services provide the major share of ADP's revenue, although revenues from the other groups are significant. INPUT estimates that revenues from ADP's Employer Services account for 58% of ADP's total revenue. The company currently provides information and processing services to more than 250,000 clients worldwide.

b. Strategy

ADP has continued to prosper employing a strategy of consistent internal growth and selective acquisitions that expand services or add market share to the company's core businesses. As it has broadened and expanded the scope of its four services, ADP has divested itself of products or business units that do not fit the company's long term strategic objectives.

In May 1992, ADP acquired the payroll services of Bank of America. With 17,000 clients and more than \$110 million in revenues, the Bank of America acquisition was ADP's largest single acquisition ever. This acquisition significantly strengthens ADP Employer Services' presence in the important California, New York, and Arizona marketplaces.

c. Products and Services

ADP Employer Services offers a range of payroll and payroll-related services, including payroll processing, payroll tax filing, human resource recordkeeping and reporting, 401(k) recordkeeping and reporting, and unemployment compensation management. On payday, ADP pays 15 million workers, representing up to an estimated 20% of the U.S. workforce.

ADP's payroll services consist primarily of the preparation and delivery employee paychecks, direct deposit advices, along with the necessary supporting journals, summaries, and other reports.

ADP's human resource product offerings, operating in conjunction with a client's payroll data base, provide human resource recordkeeping and reporting.

- Interactive Payroll and Personnel (IPP) is an on-line processing service targeted primarily to companies with more than 500 employees and multiple locations.



- HR Partner, introduced in 1990, is a PC-based integrated human resource system targeted to larger, single-site clients.
- PCPersonnel, introduced in 1990, is a PC-based system for integrated personnel and payroll data designed for medium-sized payroll clients. There are currently over 2,000 ADP clients using PC/Personnel.
- Through a new joint marketing agreement, ADP is now offering clients the PeopleSoft client/server-based human resource system product, PS/HRMS.

d. Key Issues

- Automatic Data Processing, Inc. (ADP) is the clear leader in the payroll processing services market.
- ADP has strengthened its position in the marketplace through key acquisitions in its Employer Services Group, Dealer Services Group, and Brokerage Services Group.
- Systems development and programming costs are increasing at a faster rate than revenue growth, especially in Employer Services, where R&D expenditures have been substantially increased in order to accelerate new product development, migration to new technologies, and enhance automation of existing products and services.

6. Ceridian Corporation, Inc.

8100 34th Avenue South
Minneapolis, MN 55425-1640
(612) 853-8100
Lawrence Perlman, Chairman, President & CEO
Public Corporation
Total Employees: 8,800
Total Revenue, Fiscal Year End
12/31/92: \$830,300,000

a. Company Background

Ceridian Corporation was formed in 1992 as a result of the restructuring of Control Data Corporation. In the reshaping effort, Control Data Corporation was separated into two entities, Control Data Systems and Ceridian. Control Data Systems will pursue the worldwide open systems market.

Ceridian Corporation now consists of four business groups: Ceridian Employer Services, the Arbitron Company, Ceridian Network Services and Computing Devices International.



Ceridian Employer Services was formerly part of Control Data Corporation's Business Management Services Division, which was the oldest business and data processing services in the United States, having begun in 1932 as the Service Bureau Company.

Ceridian Employer Services is the second largest payroll service in the U.S. (by revenues). Services provided include payroll processing, tax filing service, employee assistance programs, benefits administration, and human resources management software.

Revenues from Ceridian Employer Services totaled \$209.9 million for 1992 and accounted for approximately 25% of Ceridian's total revenues.

b. Strategy

The overall business strategy of the Ceridian Corporation is to focus on improving shareholder value by generating sustained revenue and earnings growth. In pursuit of its objectives, Ceridian intends to grow each of its businesses through a combination of internal development, acquisitions, and alliances. Ceridian will also seek to increase earnings by improving operating margins.

As a part of its growth strategy Ceridian made important strategic acquisitions in 1992. These include acquisition of the Applications Division of Revelation Technologies, Inc. in late 1992 that will provide greatly enhance software development capabilities and MinData at the end of 1991, which expanded Ceridian's position in the small employer-end of the market.

Ceridian plans to focus considerable attention on the small employer segment of the market, where it feels much of the new job creation will occur. It also plans to pursue internal growth by selling its services more aggressively in the marketplace.

c. Product and Services

Ceridian Employer Services markets the following products and services, all of which have been integrated:

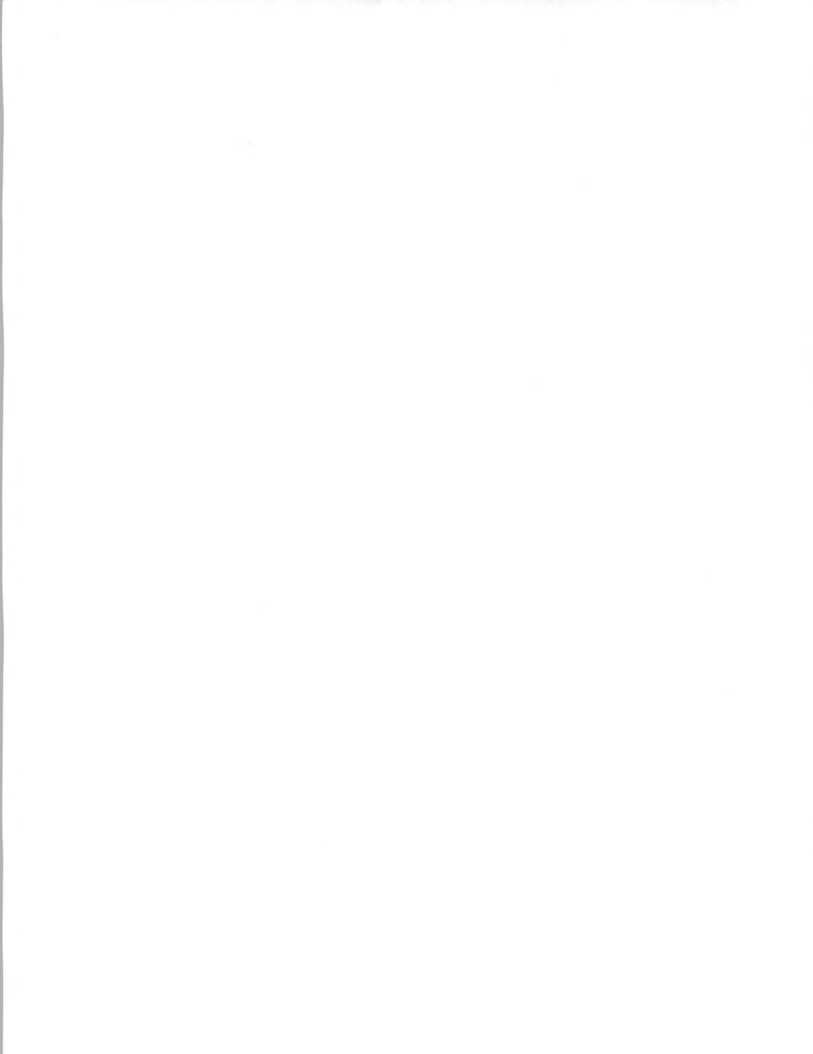
- *Signature Payroll and Tax Filing Service* - This service consists of Ceridian's payroll processing service which includes paycheck calculation and production, labor distribution and job costing, leave accruals, attendance reporting, comprehensive detailed and summary payroll reports and analyses.



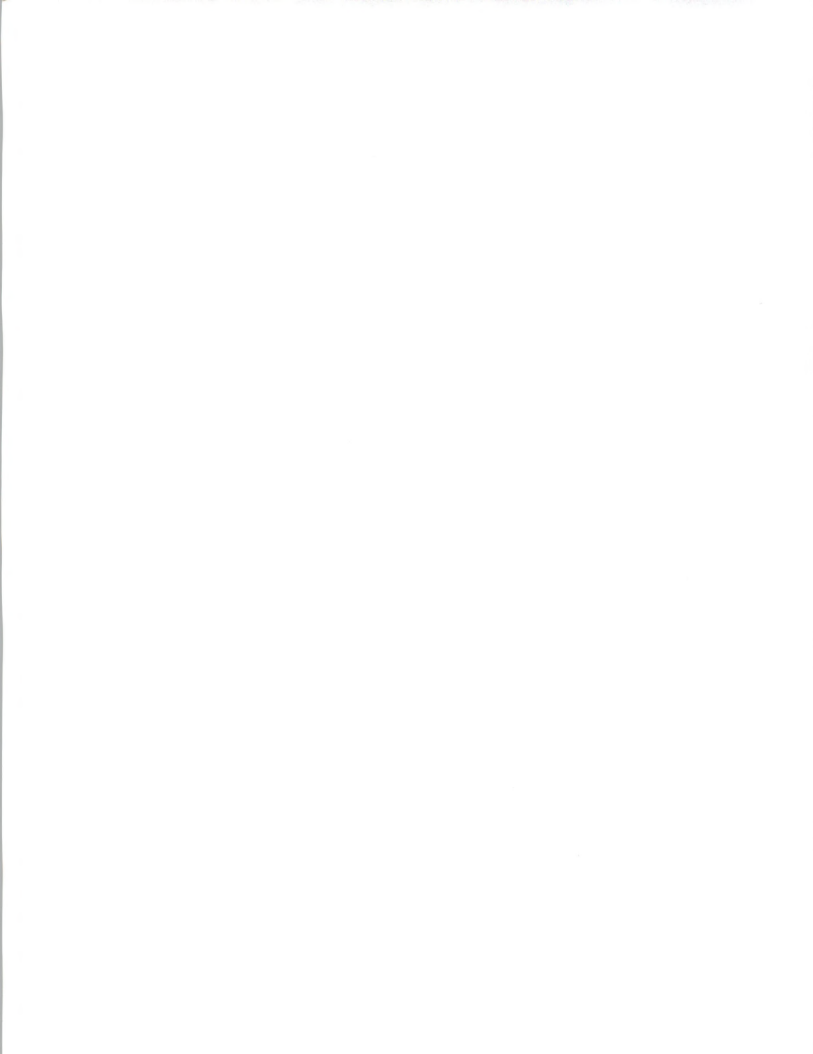
- *Repertoire Human Resource Management System* - Ceridian's version of the very successful PC-based human resource system from Revelation Technologies has been offered to payroll clients since 1985. Repertoire, originally a Revelation product very similar in functionality and technical capabilities to Bank of America's (now ADP's) Personnel Plus product, has been ported to the Advanced Revelation relational data base platform.
- *Orchestrator Encore* - In August of 1992, Ceridian announced Orchestrator Encore, a new payroll/HR software product that shares and accesses a single data base, thus eliminating the duplicate data entry and "interfacing" of the human resource product with the payroll system, which has been prevalent in the past.
- *Employee Advisory Resource (EAR)* - This is Ceridian's employee assistance service that provides confidential assessment and referral services to employees, copes with personal, financial, legal issues, substance abuse, childcare, eldercare, and other problems that impact home or work life.

d. Key Issues

- Ceridian reported a strong first quarter 1993 and has completed three consecutive quarters of solid performance since its inception. First quarter results show improvement over comparable 1992 results in revenue, net earnings, and earnings per share.
- As a result of Control Data "reinventing" itself through its reshaping process, many changes have occurred in leadership positions. Ceridian's Chairman, CEO, and President, Lawrence Perlman, has brought in a significant number of key executives and managers from outside the Control Data organization. Successful implementation of Ceridian's ambitious strategic plan hinges on the effectiveness of the new management team.
- Ceridian's Employer Services is well-situated to take advantage of the projected growth in the payroll processing/human resource systems markets as a result of its recent acquisitions.
- The addition of the Applications Development Division of Revelation Technologies expands Ceridian's software development capabilities and should substantially enhance its ability to bring competitive client/server and Windows-based products to the marketplace on a timely basis. Ceridian will have to provide this part of its organization appropriate resources and sufficient priority in the overall business activities to achieve an attractive level of success.



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Conclusions and Recommendations

A

Industry and HRMS Market Conclusions

While there is lingering uncertainty in many industries due to the uneven pace of economic recovery, on an overall basis, the underlying forces driving the human resources systems marketplace remain essentially unchanged, and this sector should continue to enjoy steady growth in the 1993-1998 time frame. The watchword for the human resource systems market is "user empowerment". The successful vendors will be those that are able to offer customers advanced technology products that provide users with maximum flexibility, control, and ease-of-use. User control over data maintenance and reporting will continue to be a driving force for the foreseeable future and will fuel the growth anticipated in the networked PC/client/server software applications areas.

Widespread corporate restructuring, downsizing, and re-engineering of business functions will test the flexibility and adaptability of human resource systems everywhere. Continued expansion of legislation affecting the work place and the drive to contain ever-rising corporate health care costs will further heighten the need for improved human resource, benefits, and payroll systems.

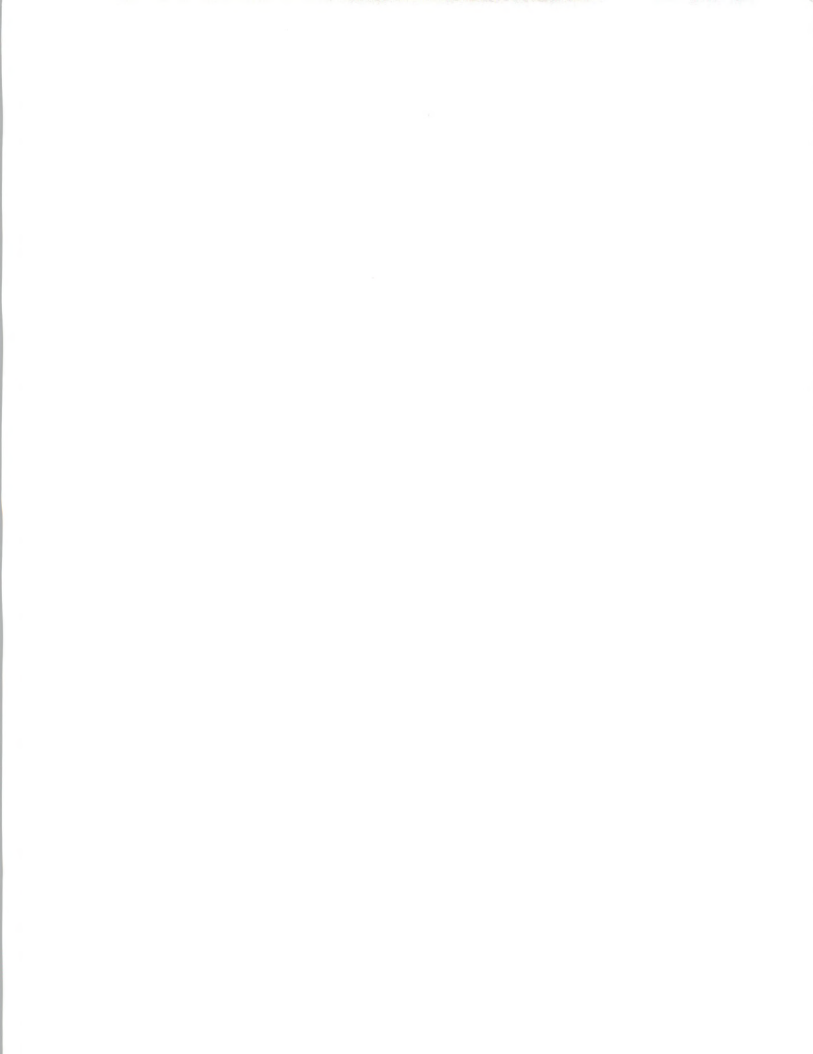
B

User Issues and Recommendations

1. Key Technological Issues for Vendors

Key technological issues facing the human resources cross-industry sector are summarized below:

- Developing viable, cost-effective client/server/open system products
- Developing Windows/GUI-based products as an alternative to traditional character-based systems



- Providing enhanced networking capabilities for multisite, remote user access for data base maintenance and reporting
- Achieving mainframe power with networked PC- based systems/workstations
- Integrating/interfacing payroll/specialty applications with general purpose or comprehensive HRMS
- Providing technical tools for quick and efficient system customization and modification without programming
- Investing in new product development versus adapting traditional "legacy" systems
- Designing products which fully utilize true relational data base technology
- Providing end-users with powerful, flexible English-like reporting and inquiry tools
- Integrating graphics more fully with data base report-writing capabilities
- Maintaining/updating products to reflect rapidly changing user and governmental-reporting requirements.
- Pioneering new voice recognition and imaging applications for use in employment, benefits, employee recordkeeping and other human resource areas

2. Key HRMS Issues

Key business issues faced by users of human resources and payroll products and services are summarized below:

- Choosing and committing to a standard technology platform for future HRMS development/acquisition
- Conversion/integration of old or highly customized systems with new vendor-provided advanced technology products
- Determining how to most effectively integrate/interface payroll and human resource systems and related subsystems.



- Defining corporate roles and responsibilities between IS, human resources and payroll for system acquisition, implementation, and administration
- Determining the most effective method for providing corporate and remote user access to human resource systems for data base maintenance and reporting
- Developing internal human resource/payroll department expertise and resources for effective ongoing systems administration and maintenance
- Allocation of sufficient organizational resources for system acquisition, implementation, and subsequent system customization

3. User Recommendations

Recommendations for users of human resources products are summarized below:

- Initiate internal systems audit to assess functionality and adequacy of existing manual and automated HR systems
- Develop a coherent strategy for short-term and long-term HR systems development and implementation
- Develop a priority list of system acquisition, modifications/enhancements
- Develop a "business case" approach to document justification for key HR systems projects; develop and rally executive level support
- Establish a dialogue with central IS over corporatewide computing directions and policies; define and clarify roles and responsibilities for system acquisition, implementation and management
- Consider necessary organization changes and staffing level changes to achieve tighter integration of human resource and payroll functions and responsibilities
- Identify and develop dedicated internal resources to manage HRMS system development, implementation, and administration.



C

Vendor Issues and Recommendations**1. Vendor Recommendations**

Recommendations for vendors are based on the same issues discussed for users and are summarized below:

- Emphasize processing power and speed, system flexibility, and ease-of-use
- Provide for a high level of end-user customization to meet unique organizational requirements for human resource/payroll processing and reporting
- Incorporate advanced relational data base technology into all HR products
- Architect and design systems with enhanced networking and communications capabilities to accommodate system growth and maximize user access for data base maintenance and reporting
- Develop and support networked PC, client/server, and open system versions of products
- Improve power, flexibility, and functionality of ad hoc reporting and data base inquiry tools
- Better integrate advanced graphics capabilities with HR/payroll data base reporting
- Develop innovative voice recognition and image processing applications for HR/payroll functions such as employment, benefits enrollment, personnel transaction processing, and other HR/payroll areas
- Focus on enhancing vendor-provided consulting services to help ensure products are fully implemented and that customers have access to competent technical assistance for system customization and modification
- Enhance vendor-provided customer training to include advanced user and technical training in system implementation, data base programming, system customization and modification
- Assist users with development of business cases, cost-benefit analyses for system purchase, and implementation.



- Fully integrate product lines to eliminate or reduce need for costly and inefficient HR/payroll and subsystem interfaces.
- Make systems modular, where possible, to enhance flexibility in product marketing
- Consider developing multiple versions of products and pricing structures to accommodate employers of substantially different sizes and complexity



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Introduction

The processing services market is now forecast to grow at 7% during the 1992-1997 period, rather than the 5% that was predicted in last year's report. INPUT has revised its forecast upward in recognition of the continuing 8% to 10% year-to-year growth experienced by the three industry leaders in payroll services, ADP, Ceredian and Paycheck, and the expectation that this steady growth will continue as the U.S. economy expands gradually during the forecast period.

EXHIBIT A-1

Human Resources Sector Market Size by Delivery Mode, 1992-1998

Delivery Modes	1992 (\$M)	Growth 92-93 (%)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	1998 (\$M)	CAGR 93-98 (%)
Sector Total	2,611	7	2,787	3,040	308	3,636	4,012	4,425	10
<i>Processing Services</i>	1,765	5	1,850	1,998	2,158	2,331	2,517	2,718	8
- Transaction Processing	1,765	5	1,850	1,998	2,158	2,331	2,517	2,718	8
<i>Turnkey Systems</i>	83	7	89	91	90	90	95	97	2
- Equipment	38	5	40	39	37	36	37	38	-1
- Software Products	32	6	34	35	35	36	39	40	3
- Applications Software	28	7	30	31	31	32	34	35	3
- Systems Software	4	0	4	4	4	4	5	5	5
- Professional Services	13	15	15	17	18	18	19	19	5
<i>Applications Software</i>	763	11	848	951	1,060	1,215	1,400	1,610	14
- Mainframe	278	5	293	308	325	340	360	378	5
- Minicomputer	273	7	293	319	345	375	400	432	8
- Workstation/PC	212	24	262	324	390	500	640	800	25

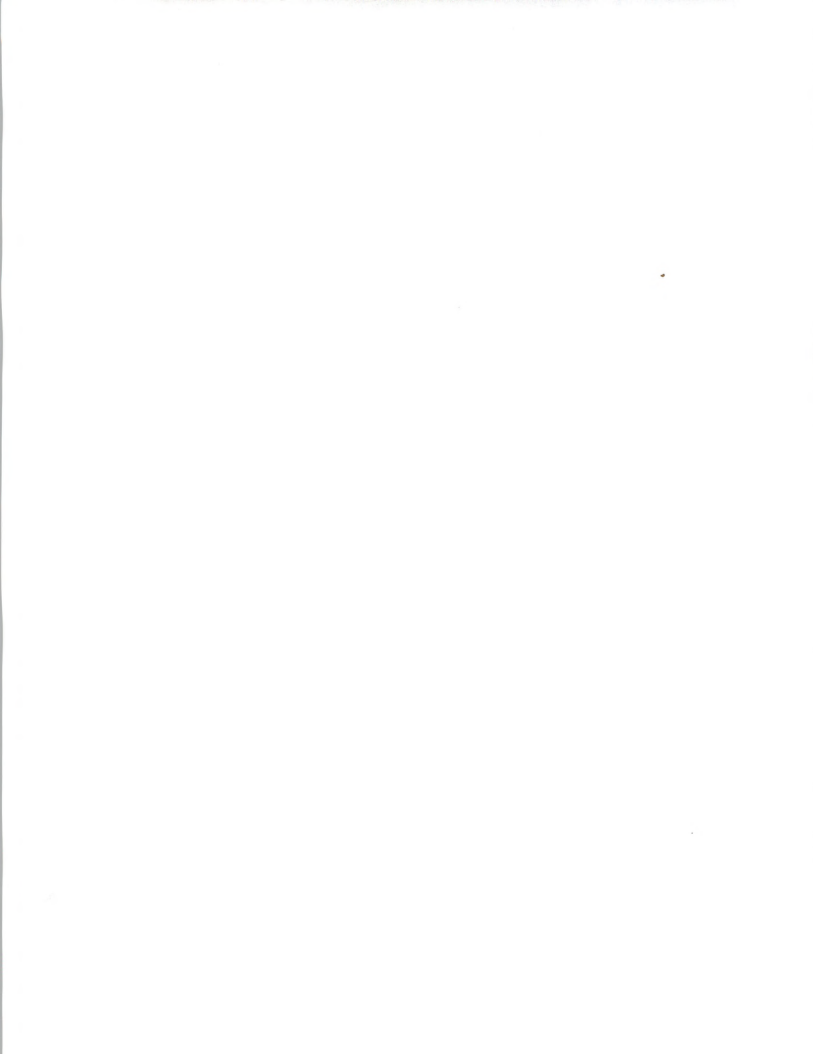
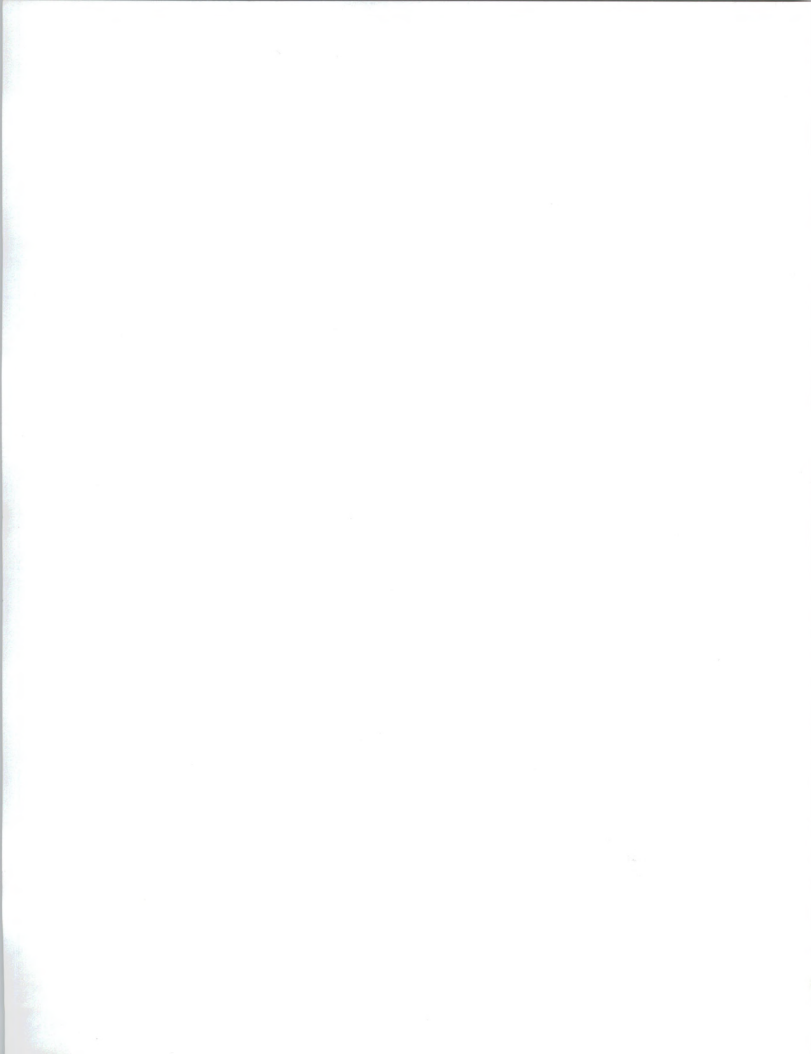
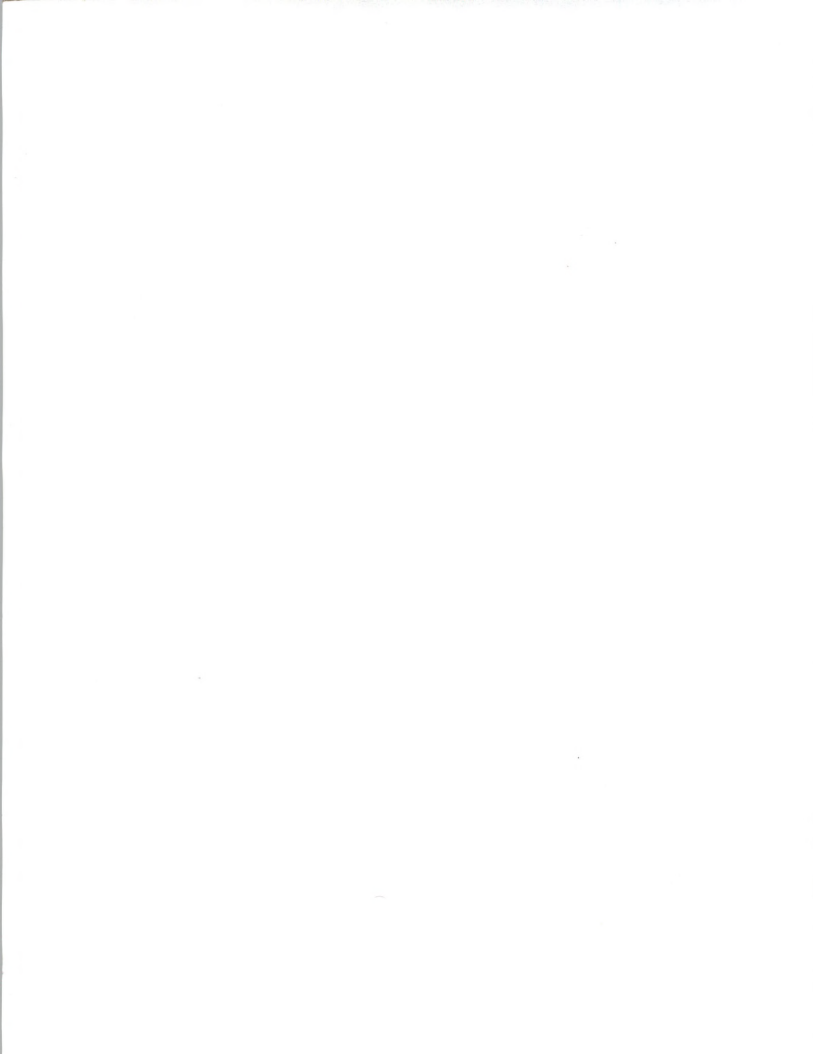


EXHIBIT A-2

Human Resources Sector 1993 MAP Data Base Reconciliation

Delivery Modes	1992 Market				1997 Market				92-97 CAGR per data 92 Rpt (%)	92-97 CAGR per data 93 Rpt (%)
	1992 Report (Fcst) (\$M)	1993 Report (Actual) (\$M)	Variance from 1992 Report		1992 Report (Fcst) (\$M)	1993 Report (Fcst) (\$M)	Variance from 1992 Report			
			(\$M)	(%)			(\$M)	(%)		
Total	2,610	2,611	1	0	3,745	4,012	267	7	7	9
Processing Services	1,760	1765	5	0	2,250	2,517	267	12	5	7
Turnkey Systems	85	83	-2	-2	95	95	0	0	2	3
Applications Software	765	763	-2	-2	1,400	1,400	0	0	13	13





ABOUT INPUT

Since 1974, information technology (IT) users and vendors throughout the world have relied on INPUT for data, objective analysis, and insightful opinions to support their plans, market assessments and technology directions particularly in computer software and services. Clients make informed decisions more quickly and save on the cost of internal research by using INPUT's services.

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- 9 Categories of Software and Services
- 7 Cross-Industry Markets
- The Worldwide Market (30 countries)

— U.S. —

- Outsourcing
- Client/Server
- Systems Integration
- IT Vendor Analysis
- EDI / Electronic Commerce
- U.S. Federal Government IT Procurements

— EUROPEAN —

- Outsourcing
- Systems Integration
- Customer Services

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Many vendors leverage INPUT's proprietary data and industry knowledge by contracting for custom consulting projects to address questions about their specific market strategies, new product/service ideas, customer satisfaction levels, competitive positions and merger/acquisition options.

INPUT advises users on a variety of IT planning and implementation issues. Clients retain INPUT to assess the effectiveness of outsourcing their IT operations, assist in the vendor selection process and in contract negotiation/implementation. INPUT has also evaluated users' plans for systems and applications downsizing.

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